BC Centre for Disease Control
AN AGENCY OF THE PROVINCIAL HEALTH SERVICES AUTHORITY

HIV

Annual Report 2013

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Summary of Trends

HIV

In 2013, the rate of new HIV diagnoses in BC was 5.7 (267 cases) per 100,000 population, a slight increase from 5.1 (237 cases) in 2012 which was the lowest rate since the start of the epidemic.

- The highest rates of new HIV diagnoses were in Vancouver Coastal and Northern Health Authorities.
- Males continue to have higher rates of new HIV diagnoses than females.
- Trends by ethnicity have shifted over the past ten years with a greater percentage of new diagnoses among ethnicities other than Caucasian. In 2013, 58% of cases were Caucasian, 11% were Aboriginal Peoples, and 10% were Asian. Over this time period, Aboriginal Peoples have been disproportionately represented in BC's HIV epidemic, comprising 11-17% of all new HIV diagnoses while comprising approximately 5% of the total provincial population.
- The majority of new HIV diagnoses among Aboriginal Peoples are in those who identify as First Nations. The number and rate of new HIV diagnoses among First Nations people have decreased over time and rates in males are comparable to rates in females.
- Gay, bisexual, and other men who have sex with men (MSM) continue to comprise the greatest number of new HIV diagnoses in BC (59% of all new HIV diagnoses in 2013). Trends are elevated but stable with the greatest increase in new HIV diagnoses among MSM born after 1980. Over time, the proportion of new HIV diagnoses in MSM from ethnicities other than Caucasian has increased (27% in 2013).
- The number of new HIV diagnoses in people who inject drugs (PWID) continued to decrease (9% of all new HIV diagnoses in 2013) for both males and females and in most age groups. The decrease in new diagnoses among PWID since 2008 is the main driver of the overall provincial decrease in new HIV diagnoses.
- A moderate increase in new HIV diagnoses among people who acquire HIV through heterosexual contact (26% of all new HIV diagnoses in 2013) for both males and females and by age group. In 2013, 48% of people in this category had an identified risk factor for HIV (e.g., partner known to be HIV positive or at higher risk, or born/residing in an HIV endemic country).
- Two women were newly diagnosed HIV positive through prenatal screening in 2013. In 2013, 18 HIV positive women having live births accessed care at the Oak Tree Clinic, of which all were diagnosed before delivery and received antenatal HAART. In 2013, no infants acquired HIV from prenatal exposure.
- In 2013, 10% of new HIV diagnoses were acute.
- In 2012, 9% of new HIV diagnoses were with advanced HIV disease.
- A total of 49 HIV positive immigrants arrived in BC in 2013; 22% were from countries where HIV is considered to be endemic.

AIDS

In 2012, the rate of AIDS case reports continued to decrease to 1.6 (73 cases) per 100,000 population.

- The rate of AIDS cases in males is decreasing for most ages. Females have a lower rate of AIDS cases than males and overall trends are stable.
- As with new HIV diagnoses, Aboriginal Peoples continue to be disproportionately represented among AIDS cases in BC comprising 7% of new AIDS cases in 2012.

HIV by Region, Gender, and Age

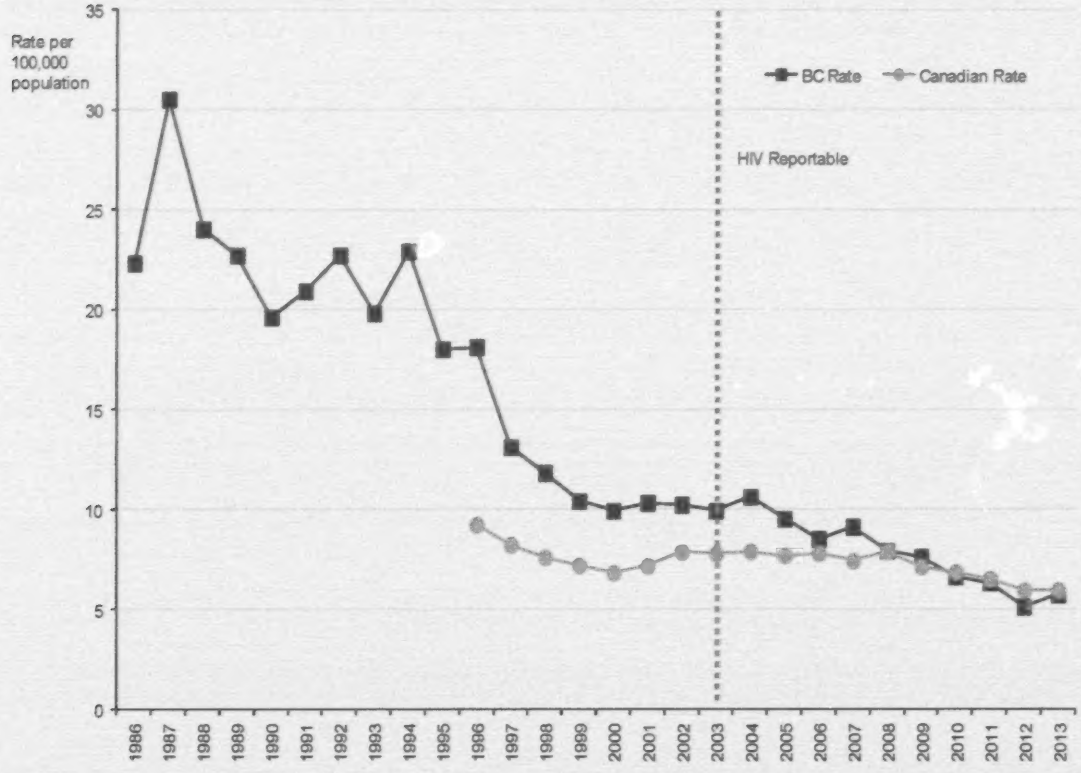
In 2013, the rate of new HIV diagnoses[1] in BC was 5.7 (267 cases) per 100,000 population, a slight increase from 5.1 (237 cases) in 2012 which was the lowest rate since the start of the epidemic (Figure 1).

Rates of new HIV diagnoses are stable in all Health Authorities. The highest rates of new HIV diagnoses were in the Vancouver Coastal and Northern Heath Authorities (Figure 3). More specifically, Vancouver, Northern Interior, and Fraser North Health Service Delivery Areas (HSDA) had the highest rates of new HIV diagnoses in 2013 (Figure 2). Recent trends in these regions have been influenced by increased testing efforts related to the provincial Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS) Project first launched in 2010.[2]

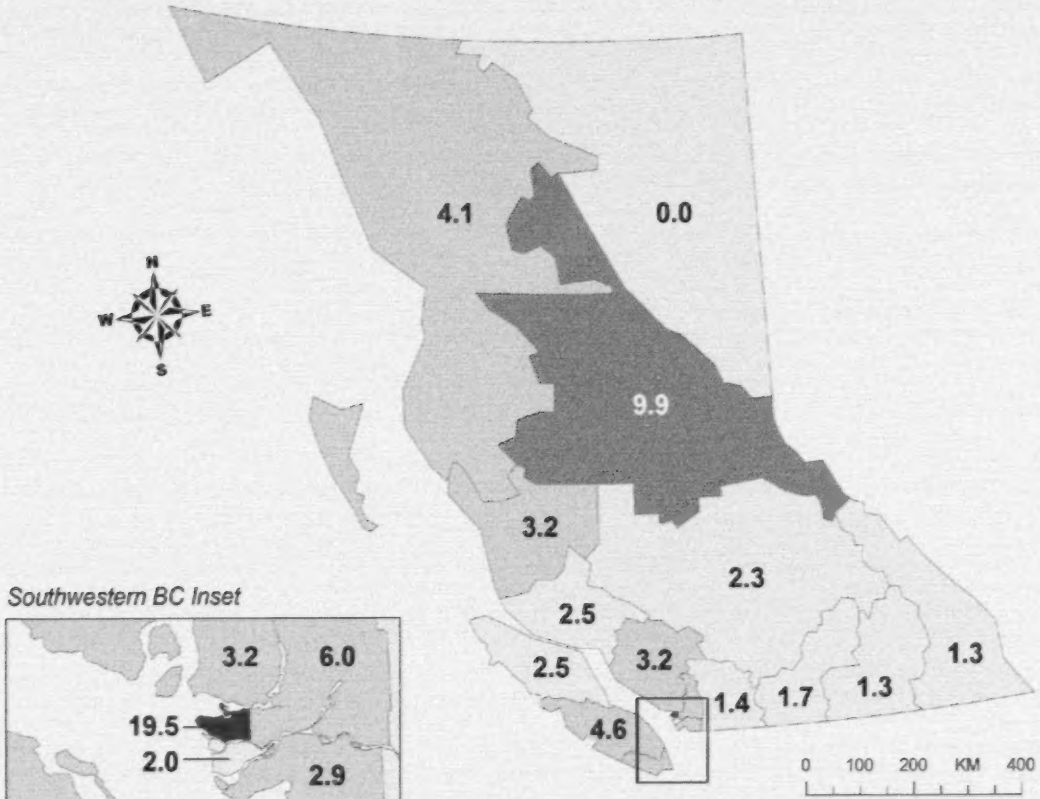
Rates of new HIV diagnoses among both males and females also show a general decreasing trend over the past ten years (Figure 4). The rate among males increased to 10.2 (235 cases) in 2013 from 9.1 (208 cases) per 100,000 population in 2012. Similarly, the rate among females increased slightly in 2013 to 1.4 (32 cases) from 1.2 (29 cases) per 100,000 population in 2012.

The rate of new HIV diagnoses continues to be higher among males than females. In 2013, the highest rates among males were in those 25-39 years old and among females in those 30-39 years old (Figure 5).

1. New HIV diagnoses in BC and Canada, 1986 to 2013



2. New HIV diagnoses in BC by health service delivery area, 2013



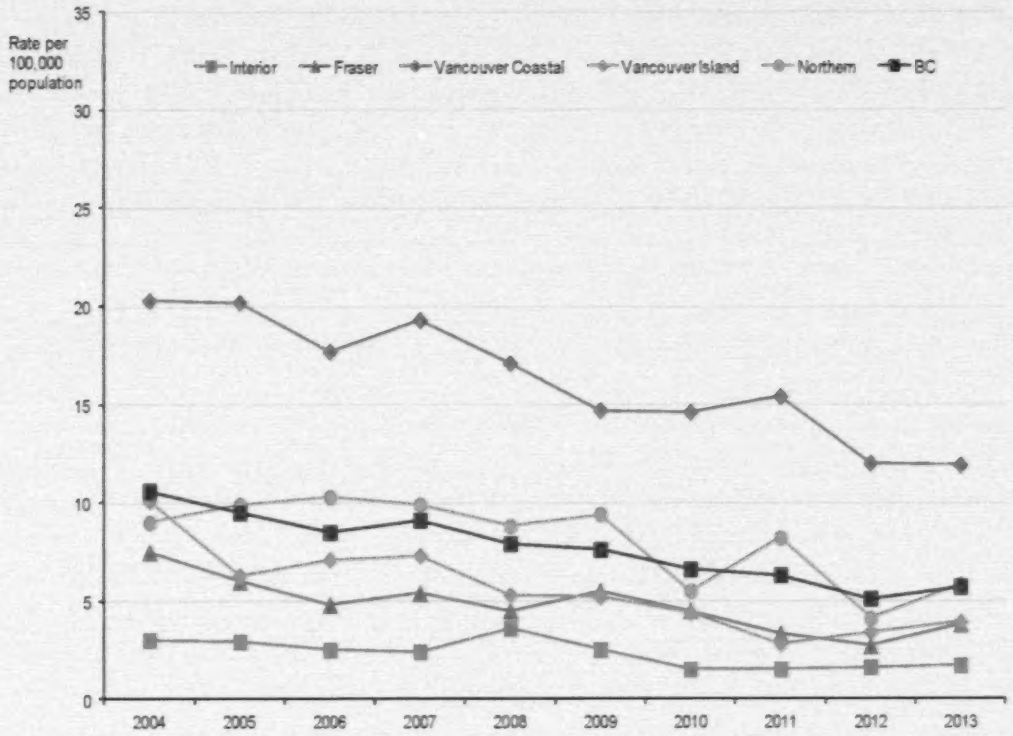
ID	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	1	1.3
13	Okanagan	6	1.7
14	Thompson Cariboo Shuswap	5	2.3
21	Fraser East	4	1.4
22	Fraser North	38	6.0
23	Fraser South	22	2.9
31	Richmond	4	2.0
32	Vancouver	128	19.5
33	North Shore/Coast Garibaldi	9	3.2
41	South Vancouver Island	15	4.0
42	Central Vancouver Island	12	4.6
43	North Vancouver Island	3	2.5
51	Northwest	3	4.1
52	Northern Interior	14	9.9
53	Northeast	0	0.0

Rate per 100,000 population by HSDA

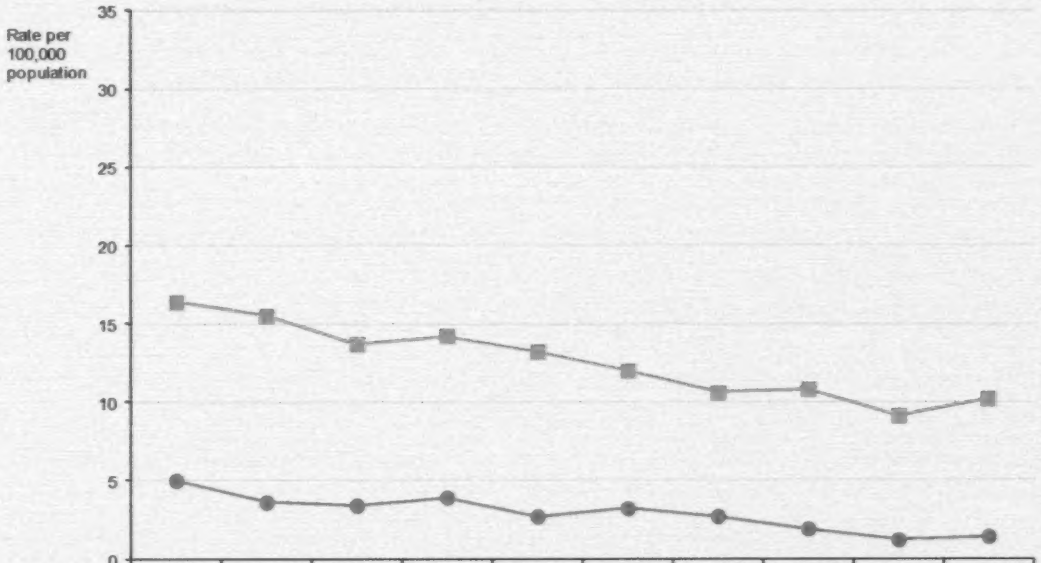
- 0.0 - 2.5
- 2.9 - 6.0
- 9.9
- 19.5

Rates calculated with population estimates released by BC Stats

3. New HIV diagnoses in BC by health authority, 2004 to 2013



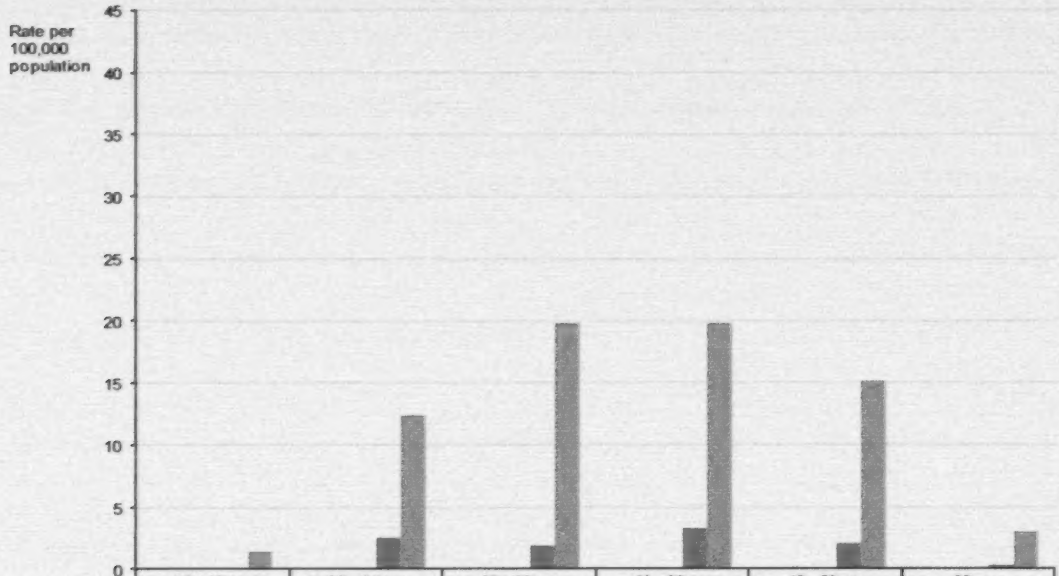
4. New HIV diagnoses in BC by gender, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Diagnoses - Female	105	77	72	85	60	71	62	43	29	32
Diagnoses - Male	337	322	289	303	287	266	238	245	208	235
Diagnoses - Other *	0	1	0	3	0	0	0	0	0	0
Rate - Female	5.0	3.6	3.4	3.9	2.7	3.2	2.7	1.9	1.2	1.4
Rate - Male	16.4	15.5	13.7	14.2	13.2	12.0	10.6	10.8	9.1	10.2

* Other - transgender and gender unknown

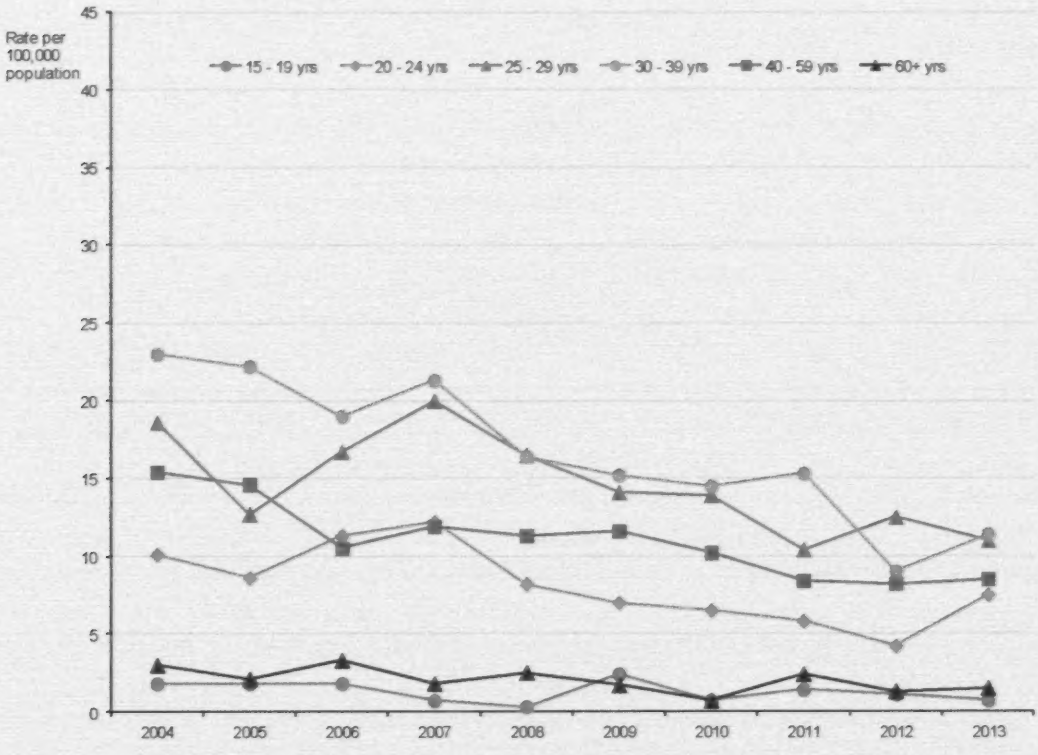
5. New HIV diagnoses in BC by age group and gender, 2013



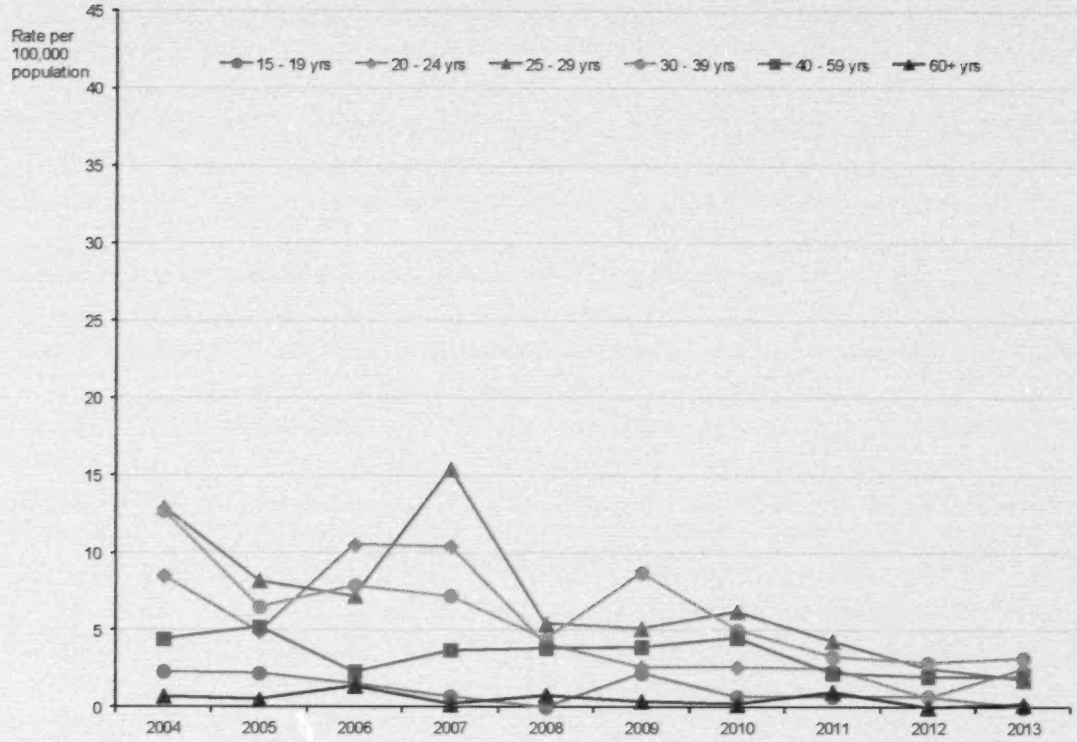
	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs
Diagnoses - Female	0	4	3	10	14	1
Diagnoses - Male	2	21	34	60	102	15
Diagnoses - Other *	0	0	0	0	0	0
Rate - Female	0.0	2.5	1.8	3.2	2.0	0.2
Rate - Male	1.4	12.3	19.8	19.8	15.1	3.0

* Other - transgender and gender unknown

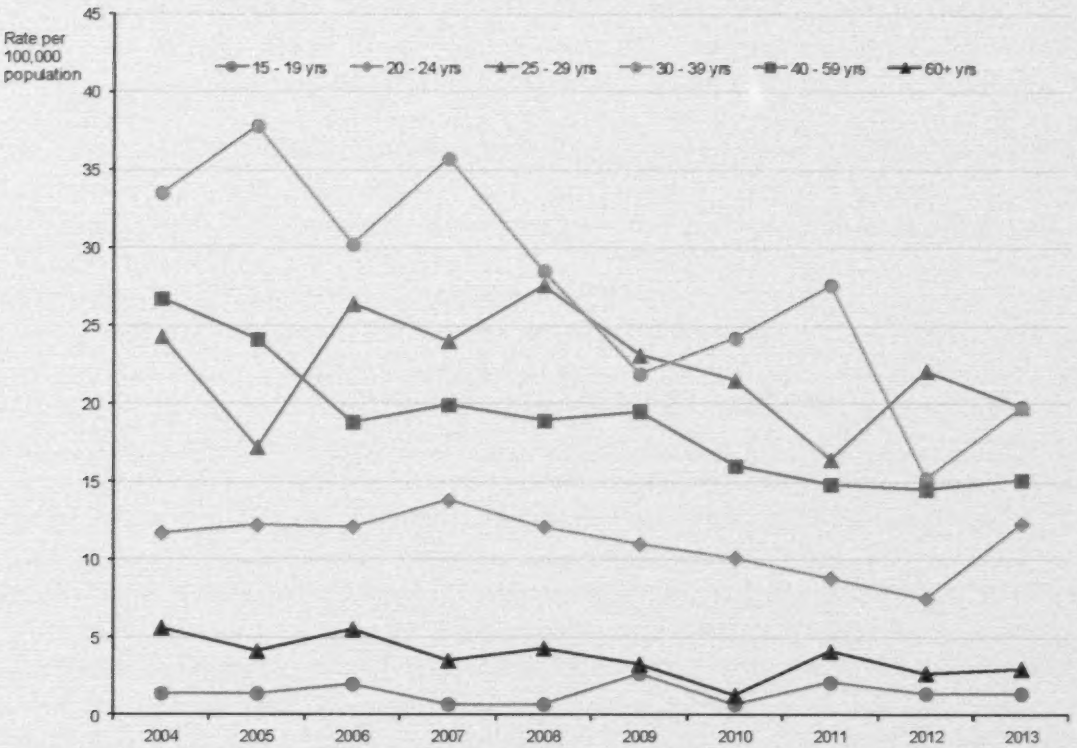
6. New HIV diagnoses in BC by age group - total, 2004 to 2013



7. New HIV diagnoses in BC by age group - female, 2004 to 2013



8. New HIV diagnoses in BC by age group - male, 2004 to 2013



HIV by Ethnicity

Over the past ten years, the proportion of reported ethnicities among people newly diagnosed with HIV in BC has shifted. The percentage of new diagnoses among Caucasian people has gradually decreased while the percentage of diagnoses among Asian people has increased with the proportion of most other ethnicities remaining relatively stable.

Similar to previous years, in 2013 most new HIV diagnoses are among people of Caucasian ethnicity (155 cases, 58.1%) followed by peoples of Aboriginal (30 cases, 11.2%) and Asian (27 cases, 10.1%) ethnicity (Table 9). Over this time period, Aboriginal Peoples have been disproportionately represented in BC's HIV epidemic, consistently comprising approximately 11-15% of new HIV diagnoses while representing only about 5% of the total provincial population.[3] This disparity is particularly pronounced for Aboriginal women who comprise 37.5% (12 cases) of new HIV diagnoses among females in 2013 (Table 10).

At the time of this report, the ethnicity of 26 (9.7%) individuals newly diagnosed with HIV in 2013 is unknown. There is an expected delay in the collection of this information. The proportion of individuals having unknown ethnicity will likely decrease by the time of next year's report.

9. Percentage of new HIV diagnoses in BC by ethnicity - total, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. Diagnoses	*442*	*400*	*361*	*391*	*347*	*337*	*300*	*288*	*237*	*267*
Caucasian	67.2	66.0	62.9	62.1	55.3	53.1	59.7	53.1	57.4	58.1
Aboriginal	15.8	15.0	15.5	16.1	13.5	16.9	13.0	15.3	12.7	11.2
Asian	3.2	4.8	4.7	4.3	8.9	7.7	9.7	11.5	12.7	10.1
South Asian	2.5	3.5	2.8	3.1	2.3	2.1	2.7	5.2	3.4	3.4
Hispanic	2.5	4.0	4.2	4.9	6.6	6.5	3.3	4.2	4.2	4.1
Black	4.3	4.3	4.2	2.6	4.9	6.8	5.3	4.5	3.0	2.6
Other *	1.4	0.5	1.1	1.5	2.6	2.1	2.3	1.4	2.5	0.7
Unknown	3.2	2.0	4.7	5.4	5.8	4.7	4.0	4.9	4.2	9.7

* Other - Arab/West Asian and other/mixed ethnicity

10. Percentage of new HIV diagnoses in BC by ethnicity - female, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. Diagnoses	*105*	*77*	*72*	*85*	*60*	*71*	*62*	*43*	*29*	*32*
Caucasian	50.5	51.9	30.6	42.4	41.7	43.7	37.1	32.6	34.5	40.6
Aboriginal	32.4	35.1	38.9	38.8	35.0	23.9	33.9	37.2	37.9	37.5
Asian	1.9	1.3	2.8	2.4	3.3	2.8	6.5	4.7	6.9	9.4
South Asian	2.9	2.6	9.7	4.7	1.7	1.4	3.2	4.7	0.0	6.3
Hispanic	0.0	0.0	1.4	1.2	0.0	0.0	1.6	2.3	3.4	0.0
Black	9.5	6.5	8.3	4.7	13.3	15.5	9.7	11.6	13.8	3.1
Other *	1.0	2.6	2.8	2.4	1.7	1.4	3.2	2.3	3.4	0.0
Unknown	1.9	0.0	5.6	3.5	3.3	11.3	4.8	4.7	0.0	3.1

* Other - Arab/West Asian and other/mixed ethnicity

11. Percentage of new HIV diagnoses in BC by ethnicity - male, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. Diagnoses	*337*	*322*	*289*	*303*	*287*	*266*	*238*	*245*	*208*	*235*
Caucasian	72.4	69.6	70.9	68.0	58.2	55.6	65.5	56.7	60.6	60.4
Aboriginal	10.7	9.9	9.7	9.9	9.1	15.0	7.6	11.4	9.1	7.7
Asian	3.6	5.6	5.2	5.0	10.1	9.0	10.5	12.7	13.5	10.2
South Asian	2.4	3.7	1.0	2.6	2.4	2.3	2.5	5.3	3.8	3.0
Hispanic	3.3	5.0	4.8	5.6	8.0	8.3	3.8	4.5	4.3	4.7
Black	2.7	3.7	3.1	2.0	3.1	4.5	4.2	3.3	1.4	2.6
Other *	1.5	0.0	0.7	1.3	2.8	2.3	2.1	1.2	2.4	0.9
Unknown	3.6	2.5	4.5	5.6	6.3	3.0	3.8	4.9	4.8	10.6

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among Aboriginal Peoples

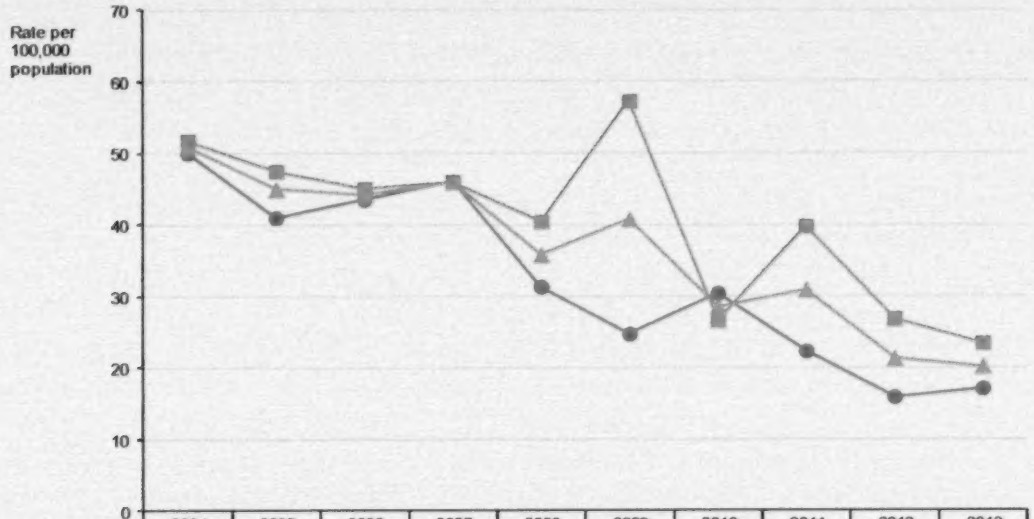
Statistics can help us understand the impact of HIV among Aboriginal Peoples in BC, but they tell only part of the story. Behind each individual with HIV counted in this report is a family, a community, and a broader social and economic context. The new HIV diagnoses among Aboriginal Peoples in this report include only those who have been tested - as with all HIV cases in this report - and only those who self-identify as Aboriginal. Among the nearly 200,000 Aboriginal persons living in BC, approximately 66% are First Nations, 30% are Métis, and fewer than 5% are Inuit or of other Aboriginal identity.[4]

There are multiple social, economic, and historic factors that contribute to the increased risk of HIV among Aboriginal Peoples – such as colonization, the experience of Indian Residential Schools, loss of language and culture, and ongoing discrimination – which have contributed to inequities in health.[5] Although this surveillance report will focus on simple statistics, we acknowledge the complex factors that determine health and recognize that Aboriginal Peoples and communities hold many strengths to draw on to address HIV prevention, care, treatment, and support.[6]

There is a disproportionate burden of HIV and AIDS among First Nations people in BC. Between 2004 and 2013, there were 28 to 60 new HIV diagnoses reported each year among First Nations people (28 cases in 2013). During the same time period, ten or fewer new HIV diagnoses were reported each year among Métis and Inuit people in BC. Because of the small number of diagnoses among Métis and Inuit people and the availability of population estimates for status First Nations people (needed for rate calculations), the remainder of this section focuses on new HIV diagnoses among people who identify as First Nations.

The number and rate of new HIV diagnoses among First Nations people have decreased over the past 10 years (Figure 12). This is consistent with the decrease in new HIV diagnoses among the BC population overall.

12. New HIV diagnoses among First Nations people in BC by gender, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Diagnoses - Female	30	25	27	29	20	16	20	15	11	12
Diagnoses - Male	30	28	27	28	25	36	17	26	18	16
Diagnoses - Other *	0	1	0	0	0	0	0	0	0	0
Diagnoses - Total	60	54	54	57	45	52	37	41	29	28
Rate - Female	50.0	41.0	43.5	46.0	31.3	24.7	30.4	22.3	15.9	17.1
Rate - Male	51.7	47.4	45.0	45.9	40.4	57.3	26.6	39.8	26.8	23.4
Rate - Total	50.9	45.0	44.2	46.0	35.8	40.7	28.5	30.9	21.2	20.2

* Other - transgender and gender unknown
Rates based on First Nations population estimates from Aboriginal Affairs and Northern Development Canada (AANDC)

In 2013, as in previous years, the majority of new HIV diagnoses among First Nations people were in Vancouver Coastal (8 cases, 28.6%) and Northern (8 cases, 28.6%) Health Authorities. Six new HIV diagnoses were reported in First Nations people in Island Health (6 cases, 21.4%) and 3 new HIV diagnoses were reported in each of Fraser (3 cases, 10.7%) and Interior (3 cases, 10.7%) Health Authorities.

The rate of new HIV diagnoses in First Nations men is comparable to the rate in women (Figure 12). This contrasts with gender-stratified rates among the general BC population in which rates are five-to-ten fold higher among men (Figure 4). This difference could reflect the fact that most new HIV diagnoses among First Nations people are attributed to people who inject drugs (PWID) and heterosexual (HET) exposure categories which include more women, whereas most new HIV diagnoses among the total population are attributed to the men who have sex with men (MSM) exposure category. Rates in both First Nations women and men exceed the provincial rates among women and men (17.1 versus 1.4 per 100,000 population for women and 23.4 versus 10.2 per 100,000 population for men in 2013).

In 2013, the highest rates of new HIV diagnoses for both First Nations men and women were in the 30-39 year age group (69.6 and 40.7 per 100,000 population, respectively).

HIV by Exposure Category

Gay, bisexual, and other men who have sex with men (MSM) continue to comprise the greatest number of new HIV diagnoses in BC. The overall trend in new HIV diagnoses among MSM is elevated compared with other exposure categories but has been decreasing slightly over the past 10 years. The number of new HIV diagnoses among MSM increased to 158 cases (59.2%) in 2013 from 149 cases (62.9%) in 2012. In 2013, the number of new HIV diagnoses in BC among people who inject drugs (PWID) continued to decrease to 25 cases (9.4% of all new diagnoses) from 29 cases (12.2%) in 2012. The number of new HIV diagnoses due to heterosexual contact demonstrated a moderate increase to 68 (25.5%) in 2013 from 52 cases (21.9%) in 2012 (Figure 14). Trends in these three main exposure categories in BC are explored in more detail in the following sections.

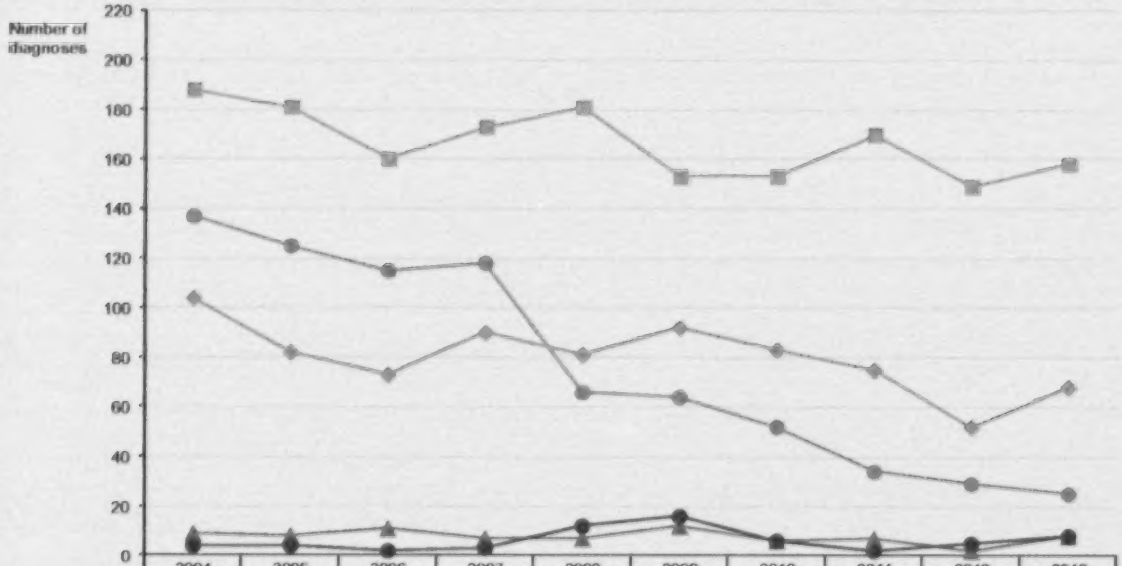
At the time of this report, the exposure category of 7 (2.6%) individuals newly diagnosed with HIV in 2013 are not identified or are unknown. The final number of individuals in each exposure category for 2013 may change slightly if further information on these seven individuals is received.

13. New HIV diagnoses in BC by exposure category and health authority, 2004 to 2013

Health Authority	Exposure Category	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Interior	MSM	5	7	8	4	10	4	4	3	4	3
	PWID	8	5	7	9	6	1	2	1	4	0
	HET	6	8	1	4	9	11	5	5	4	8
	Other	1	0	1	0	1	2	0	1	0	0
	NIR/UNK	0	0	0	0	0	0	0	1	0	2
Fraser	MSM	43	26	26	30	30	27	22	24	22	36
	PWID	32	34	20	16	8	18	11	5	5	9
	HET	32	23	24	33	26	35	30	22	15	16
	Other	1	4	2	1	3	4	4	3	1	3
	NIR/UNK	1	1	0	1	2	3	5	0	2	0
Vancouver Coastal	MSM	119	135	114	128	121	104	112	132	105	100
	PWID	45	47	39	41	27	20	21	13	11	11
	HET	42	27	31	39	29	29	33	31	23	24
	Other	5	3	3	1	2	5	1	2	0	2
	NIR/UNK	1	1	1	0	8	6	0	0	2	4
Vancouver Island	MSM	16	11	8	9	18	16	13	8	16	15
	PWID	35	20	32	30	11	10	9	3	3	1
	HET	20	14	7	10	9	8	10	9	6	11
	Other	0	0	3	4	0	1	1	1	1	1
	NIR/UNK	0	0	1	0	1	4	0	0	0	2
Northern	MSM	4	1	3	0	2	1	1	3	1	3
	PWID	17	19	15	22	13	15	9	12	6	4
	HET	3	7	9	4	8	9	5	8	4	8
	Other	2	0	2	1	1	0	0	0	0	2
	NIR/UNK	0	1	0	1	1	2	1	1	1	0

MSM - men who have sex with men
PWID - people who inject drugs
HET - heterosexual contact
Other - blood/blood products, occupational, perinatal, or other exposures
NIR - no identified risk
UNK - exposure unknown

14. New HIV diagnoses in BC by exposure category - total, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
MSM	188	181	160	173	181	153	153	170	149	158
PWID	137	125	115	118	66	64	52	34	29	25
HET	104	82	73	90	81	92	83	75	52	68
Other	9	8	11	7	7	12	6	7	2	8
NIR/UNK	4	4	2	3	12	16	6	2	5	8

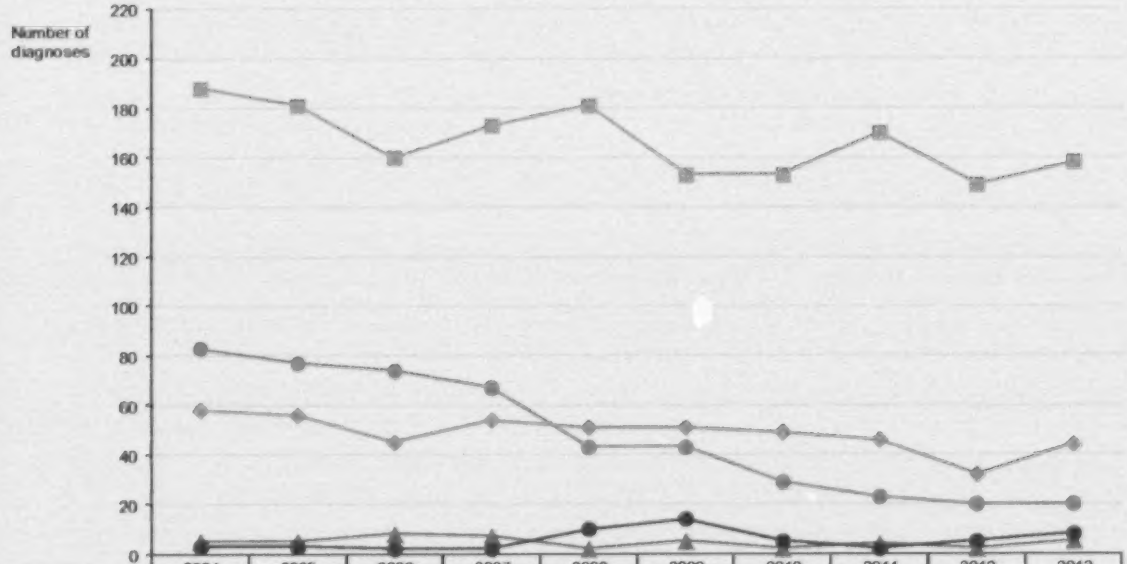
MSM - men who have sex with men
PWID - people who inject drugs
HET - heterosexual contact
NIR - no identified risk
UNK - exposure unknown
Other - blood/blood products, occupational, perinatal, or other exposures

15. New HIV diagnoses in BC by exposure category - female, 2004 to 2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
PWID	54	47	41	49	23	21	23	11	9	5
HET	46	26	28	35	30	41	34	29	20	24
Other	4	3	3	0	5	7	4	3	0	3
NIR/UNK	1	1	0	1	2	2	1	0	0	0

PWID - people who inject drugs
HET - heterosexual contact
NIR - no identified risk
UNK - exposure unknown
Other - blood/blood products, occupational, perinatal, or other exposures

16. New HIV diagnoses in BC by exposure category - male, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
MSM	188	181	160	173	181	153	153	170	149	158
PWID	83	77	74	67	43	43	29	23	20	20
HET	58	56	45	54	51	51	49	46	32	44
Other	5	5	8	7	2	5	2	4	2	5
NIR/UNK	3	3	2	2	10	14	5	2	5	8

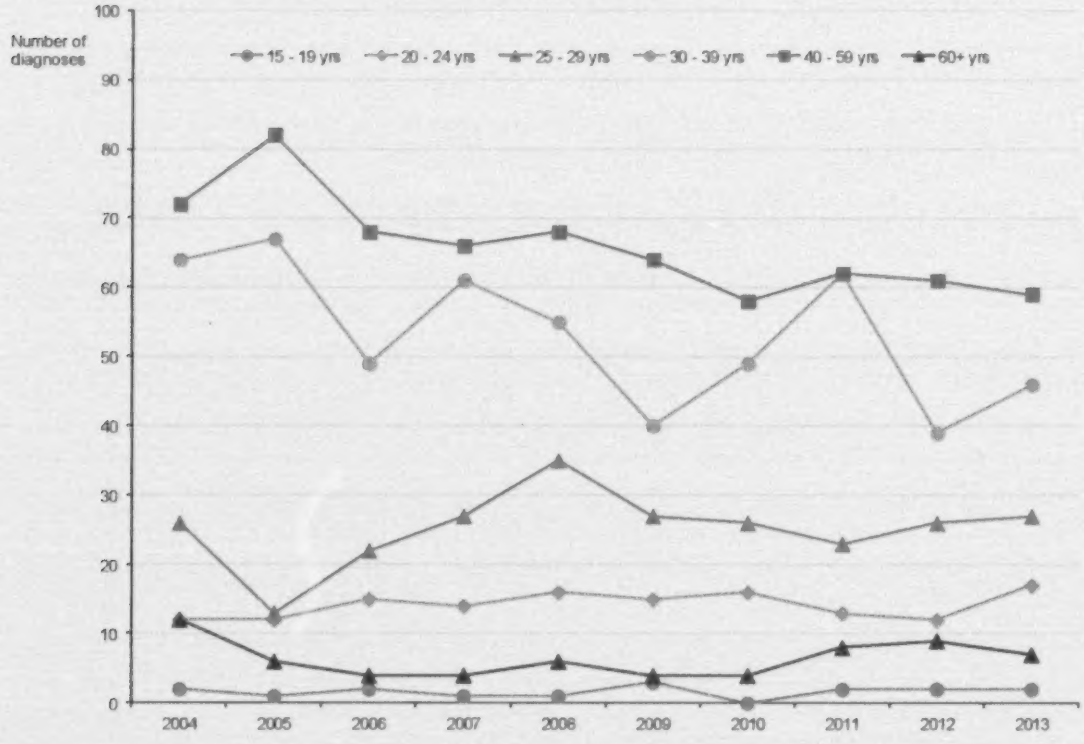
MSM - men who have sex with men PWID - people who inject drugs HET - heterosexual contact
NIR - no identified risk UNK - exposure unknown
Other - blood/blood products, occupational, perinatal, or other exposures

New HIV Diagnoses among Men who have Sex with Men

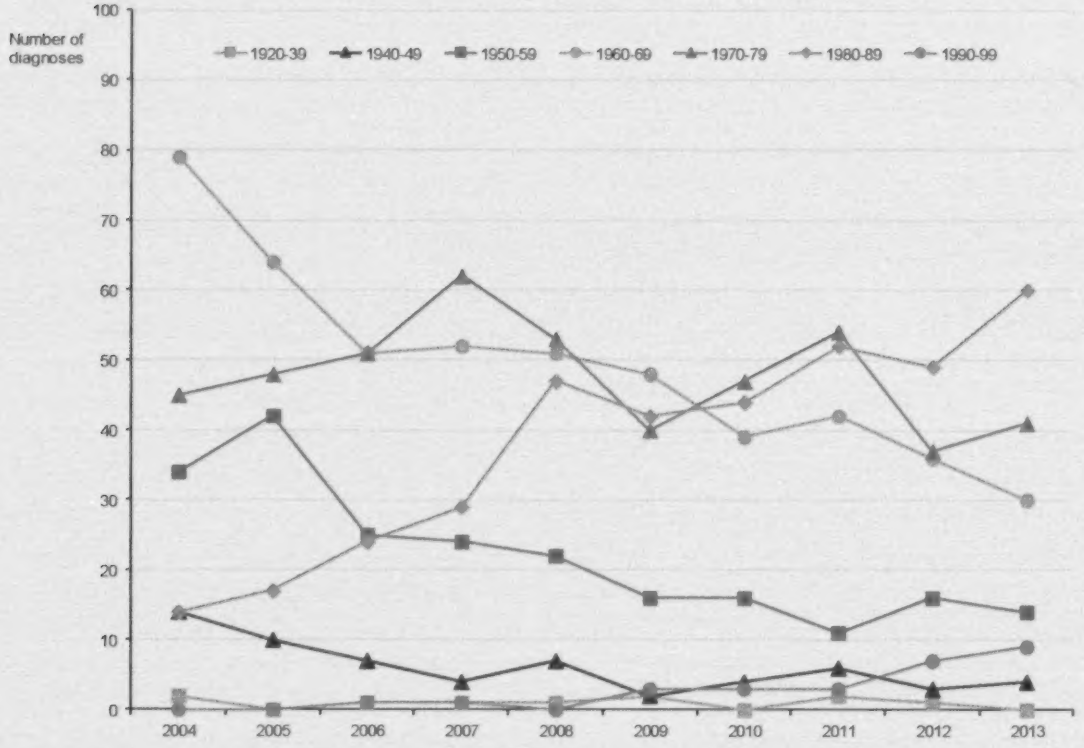
Gay, bisexual, and other men who have sex with men (MSM) were the population first affected by HIV in BC and remain the population most affected by HIV in BC, as in many other regions of North America. The Public Health Agency of Canada estimated that in 2011, 45% of the 11,700 people with prevalent HIV infections in BC (i.e., living with HIV) were MSM (Table 33) as were 57% of the 380 people with incident (new) HIV infections (Table 32). Community surveys of MSM in venues have found an HIV prevalence of 14% and 18% in Victoria (2007)[7] and Vancouver (2008)[8] respectively. While there are no accurate estimates of the size of the MSM population in BC, it is clear that MSM are disproportionately represented among new HIV diagnoses in BC compared to other males.

There are many factors that have led to the current epidemic of HIV among MSM in BC, ranging from social factors (such as stigma and discrimination related to sexual orientation), to community factors (such as access to appropriate, safe health services), to individual factors (such as changes in uptake of HIV medications, sexual behaviours, and use of prevention measures including condoms).[9] The recognition of the complexity of the epidemic among MSM has led internationally to an increased emphasis on renewing the public health response to HIV among MSM by adopting broader approaches to HIV prevention, including sexual health and determinants-based approaches.[10]

17. New HIV diagnoses among MSM in BC by age group, 2004 to 2013



18. New HIV diagnoses among MSM in BC by birth cohort, 2004 to 2013



Overall, the trend in new HIV diagnoses among MSM appears to be declining slightly but not to the same extent as in other exposure categories (Figure 16). Accordingly, MSM comprise a greater proportion of all new HIV diagnoses in BC. In 2013, 59.2% (158 cases) of all new HIV diagnoses were among MSM and 4.4% (7 cases) of these MSM were identified as having injected drugs (MSM/PWID) which is consistent with historic trends (Table 19).

19. Percentage of new MSM HIV diagnoses who inject drugs in BC, 2004 to 2013

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of MSM Diagnoses	*188*	*181*	*160*	*173*	*181*	*153*	*153*	*170*	*149*	*158*
MSM/PWID	10.1	7.7	9.4	5.8	3.3	8.5	4.6	7.1	2.7	4.4

The annual proportion of new HIV diagnoses by age group is stable over time among MSM (Figure 17). Of the 158 new HIV diagnoses among MSM in 2013, 29.1% (46 cases) were under the age of 30 years, 29.1% (46 cases) were aged 30-39 years, 37.3% (59 cases) were aged 40-59 years, and 4.4% (7 cases) were aged 60 years or older. While the age distribution of new HIV diagnoses among MSM is stable over time, it is important to consider that different generations of MSM in Vancouver have different experiences of the HIV epidemic due in part to the achievement of milestones such as the development of HIV treatment (i.e., highly active antiretroviral therapy or HAART), shifting community norms among gay/bisexual men, and broader socio-cultural and political factors which have reduced the stigma attached to being gay and to living with HIV.

When looking at new HIV diagnoses since 2004 by different generations, new HIV diagnoses have increased among MSM born between 1980-89 and decreased or remained stable in older cohorts born before 1980 (Figure 18). These changes in new diagnoses among generations of MSM reflect population dynamics and sexual activity, as younger men "age in" and older men "age out" of the epidemic. Notably, the cohort of men born between 1980-89 constitutes the first to enter adolescence/adulthood in the post-HAART era and hence the first to not witness first-hand the ill effects of AIDS – and its related mortality – experienced by the gay community in the 1980s and early 1990s.

There is some indication that the profile of MSM by ethnicity is also shifting with more ethnic minorities represented in recent cases, particularly Asian MSM. In 2013, 63.3% (100 cases) of MSM newly diagnosed with HIV were Caucasian, 12.7% (20 cases) were Asian, 5.7% (9 cases) were Hispanic, and 3.2% (5 cases) were Aboriginal males. Over the past years, the proportion of new HIV diagnoses in MSM from ethnic groups other than Caucasian has increased from 16.5% (31 cases) in 2004 to 27.2% (43 cases) in 2013 (Table 20).

20. Percentage of new HIV diagnoses among MSM in BC by ethnicity, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of Diagnoses	*188*	*181*	*160*	*173*	*181*	*153*	*153*	*170*	*149*	*158*
Caucasian	81.9	76.2	79.4	76.9	62.4	58.2	74.5	61.2	64.4	63.3
Aboriginal	3.2	3.9	6.9	2.3	5.5	8.5	2.0	5.9	3.4	3.2
Asian	5.3	7.7	5.6	6.4	11.6	12.4	13.1	15.3	18.1	12.7
South Asian	1.1	3.3	0.0	2.3	2.2	0.7	1.3	2.4	2.7	1.9
Hispanic	3.7	6.6	6.9	7.5	11.0	11.8	5.2	5.9	4.7	5.7
Black	1.1	1.1	0.6	1.2	1.1	2.6	0.0	2.9	1.3	2.5
Other *	2.1	0.0	0.6	1.7	3.3	2.6	2.6	1.2	2.7	1.3
Unknown	1.6	1.1	0.0	1.7	2.8	3.3	1.3	5.3	2.7	9.5

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among People who Inject Drugs

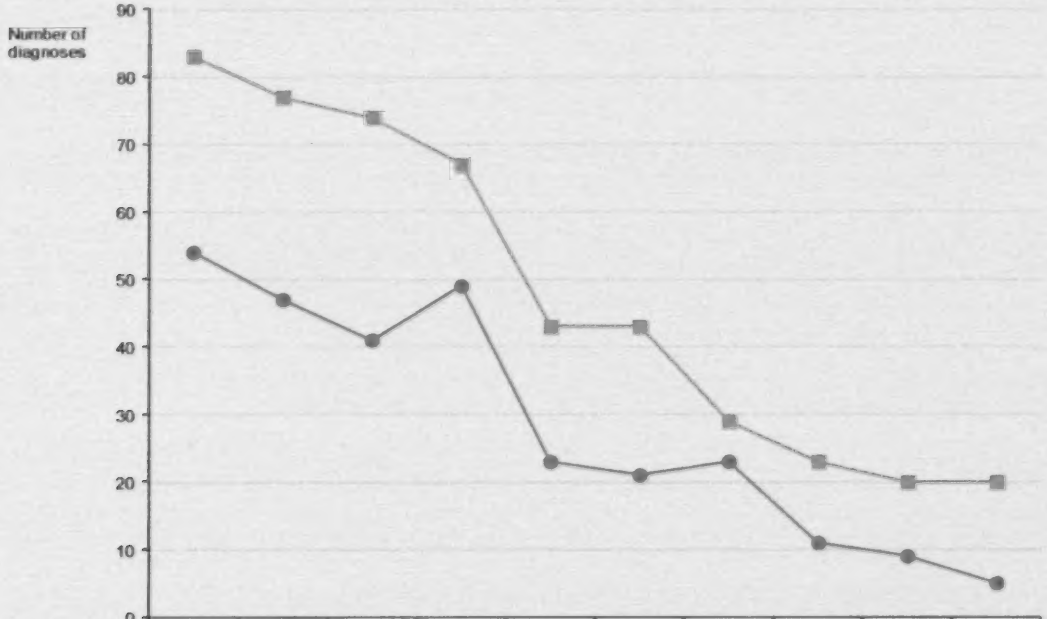
The overall decrease in HIV diagnoses in BC is largely due to the dramatic decrease in the number of new HIV diagnoses among people who inject drugs (PWID) in BC starting in 2008 (Figure 14). In the years prior to the decrease, PWID comprised approximately 30% of all new HIV diagnoses in the province. In 2013, 9.4% (25 cases) of all new HIV diagnoses were among PWID.

There are several possible explanations for this decrease which are likely acting in concert to result in a net overall decrease in new diagnoses among PWID. The increasing uptake and duration of highly active antiretroviral therapy (HAART) as well as provincial harm reduction programs (such as needle distribution programs, supervised injection sites, and other prevention programs) has helped lead to declines in HIV transmission among PWID. Survey data among drug users in Vancouver and Victoria also demonstrated shifts in drug using behaviour during this period, from injecting to smoking drugs which has also likely been a significant factor. The continued decline in new HIV diagnoses among PWID is encouraging, and efforts to maintain and enhance current prevention programs for PWID are needed.[11]

The continued decrease of new HIV diagnoses among PWID is observed in both males and females and across all age groups. In 2013, the majority of new HIV diagnoses among PWID continue to be male (20 cases, 80.0%) (Figure 21) while the greatest number of new HIV diagnoses are between 30 to 59 years of age (Figure 22).

The majority of new HIV diagnoses among PWID continue to be among Caucasian (14 cases, 56.0%) and Aboriginal Peoples (5 cases, 20.0%). Over the past 10 years, the percentage of new HIV diagnoses among Caucasian people has decreased (Table 23).

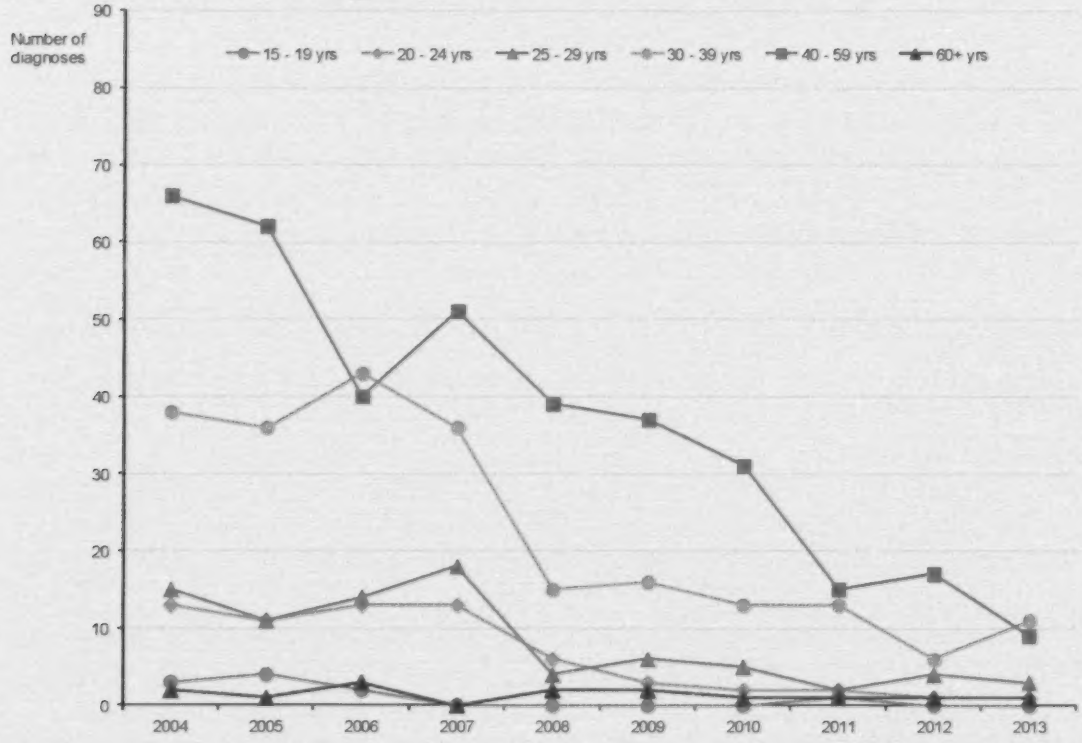
21. New HIV diagnoses among PWID in BC by gender, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Diagnoses - Female	54	47	41	49	23	21	23	11	9	5
Diagnoses - Male	83	77	74	67	43	43	29	23	20	20
Diagnoses - Other *	0	1	0	2	0	0	0	0	0	0

* Other - transgender and gender unknown

22. New HIV diagnoses among PWID in BC by age group, 2004 to 2013



23. Percentage of new HIV diagnoses among PWID in BC by ethnicity, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of Diagnoses	*137*	*125*	*115*	*118*	*66*	*64*	*52*	*34*	*29*	*25*
Caucasian	63.5	68.0	56.5	50.0	57.6	53.1	65.4	44.1	55.2	56.0
Aboriginal	29.9	28.8	27.0	36.4	31.8	34.4	28.8	47.1	41.4	20.0
Asian	0.0	0.8	2.6	0.0	1.5	1.6	1.9	2.9	0.0	4.0
South Asian	1.5	0.8	1.7	1.7	0.0	1.6	0.0	0.0	0.0	0.0
Hispanic	0.0	0.8	1.7	1.7	0.0	0.0	0.0	2.9	0.0	4.0
Black	0.0	0.0	0.0	0.0	1.5	1.6	1.9	0.0	0.0	0.0
Other *	0.0	0.8	0.9	1.7	3.0	0.0	1.9	0.0	0.0	0.0
Unknown	5.1	0.0	9.6	8.5	4.5	7.8	0.0	2.9	3.4	16.0

* Other - Arab/West Asian and other/mixed ethnicity

New HIV Diagnoses among People who acquire HIV through Heterosexual Contact

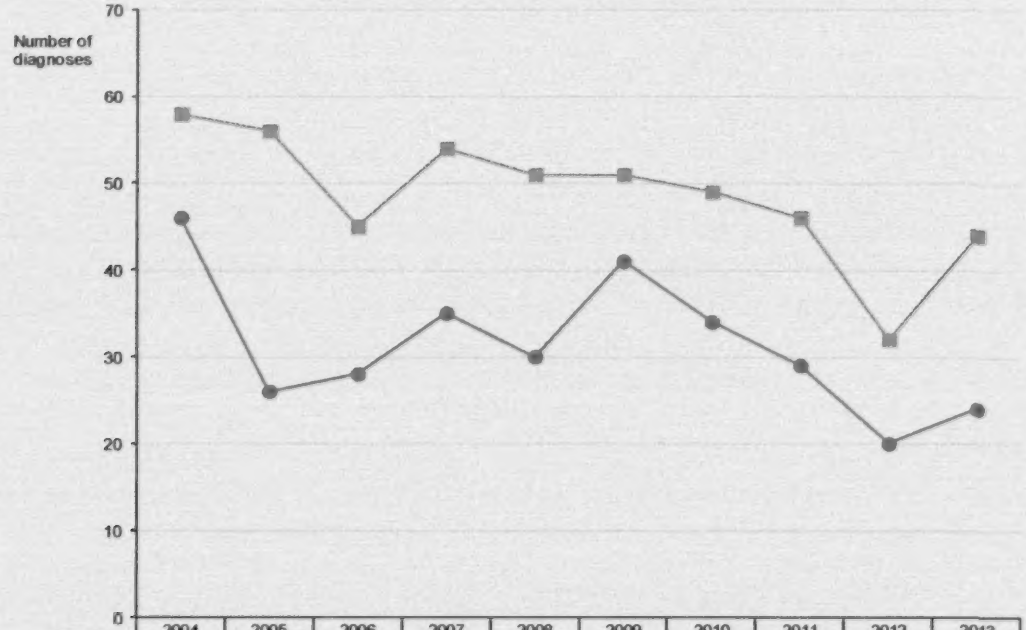
People who have acquired HIV through heterosexual contact (HET) represent the exposure category with the second greatest number of new HIV diagnoses in BC in 2013 (68 cases, 25.5%) (Figure 14). This population is heterogeneous, including for example immigrants from HIV endemic countries with a new HIV diagnosis in BC. It is also possible that this population includes individuals where risk factors for acquisition of HIV through other routes of exposure exists but was not identified during follow-up.

The number of new HIV diagnoses among people who have acquired HIV through heterosexual contact increased in 2013 to 68 cases from 52 cases in 2012 as did trends by gender (Figure 24). In 2013, the majority of new HIV diagnoses among heterosexuals continue to be males (44 cases, 64.7%). The number of new diagnoses increased among heterosexual females in 2013 to 24 from 20 cases in 2012. Since 2004, the majority of new HIV diagnoses are observed in individuals between 40 to 59 years of age (Figure 25).

People from non Caucasian ethnicity comprise a greater proportion of new HIV diagnoses among people who have acquired HIV through heterosexual contact compared to other exposure categories. Similar to previous years, in 2013, most of the new HIV diagnoses in heterosexuals are among Caucasians (36 cases, 52.9%) followed by Aboriginal Peoples (16 cases, 23.5%) (Table 26).

A majority of new diagnoses in this population each year are in people who on follow-up are found to have an identified risk factor (e.g., born/residing in an HIV endemic country or having a sexual partner who is HIV positive). In 2013, 48.5% (33 cases) of new diagnoses among people who acquired HIV through heterosexual contact had at least one identified risk factor (Figure 27).

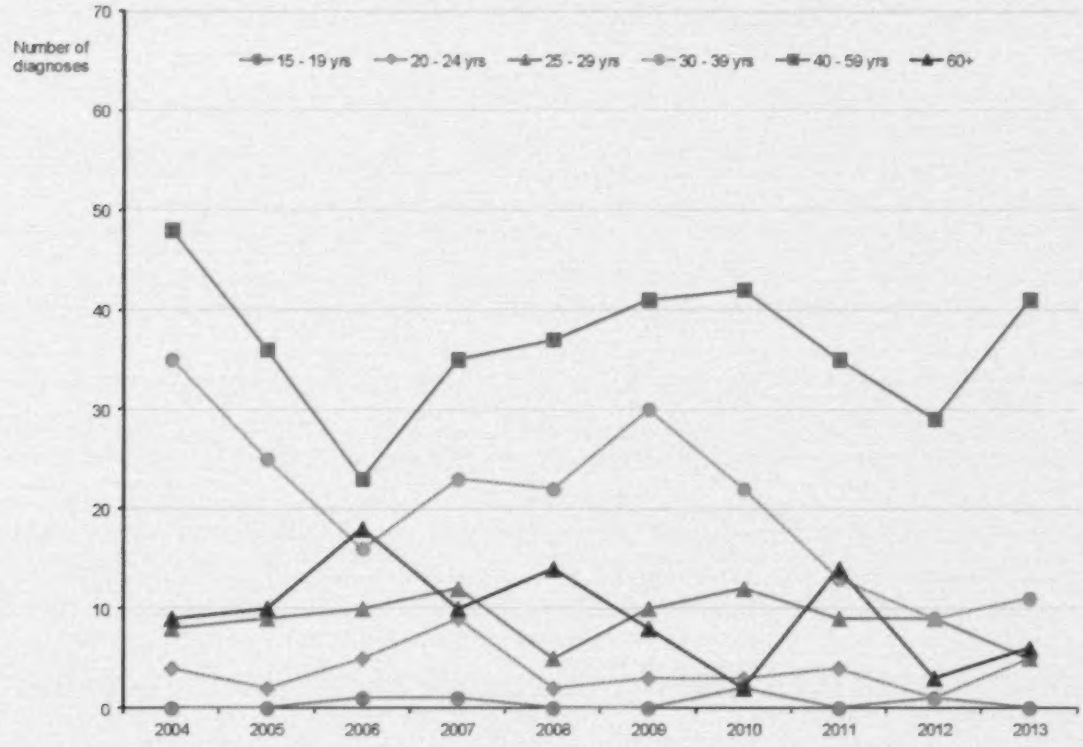
24. New HIV diagnoses among HET in BC by gender, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Diagnoses - Female	46	26	28	35	30	41	34	29	20	24
Diagnoses - Male	58	56	45	54	51	51	49	46	32	44
Diagnoses - Other *	0	0	0	1	0	0	0	0	0	0

* Other - transgender and gender unknown

25. New HIV diagnoses among HET in BC by age group, 2004 to 2013

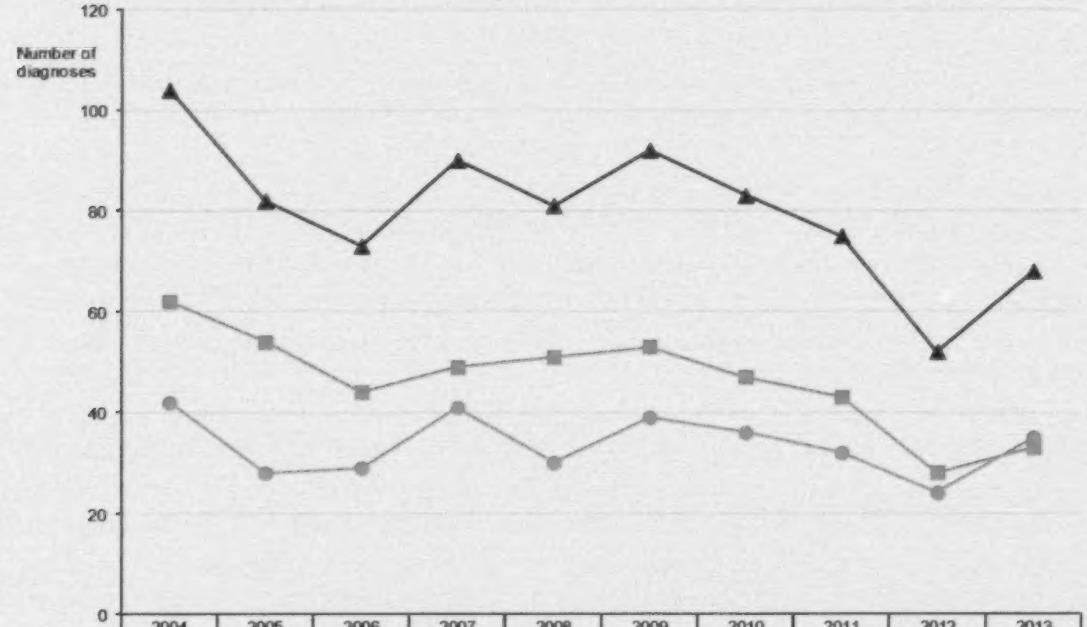


26. Percentage of new HIV diagnoses among HET in BC by ethnicity, 2004 to 2013

Ethnicity	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
No. of Diagnoses	*104*	*82*	*73*	*90*	*81*	*92*	*83*	*75*	*52*	*68*
Caucasian	51.0	47.6	42.5	52.2	48.1	51.1	34.9	42.7	44.2	52.9
Aboriginal	21.2	19.5	17.8	15.6	17.3	17.4	24.1	21.3	25.0	23.5
Asian	2.9	3.7	6.8	5.6	8.6	6.5	8.4	8.0	5.8	7.4
South Asian	6.7	6.1	9.6	6.7	3.7	5.4	7.2	13.3	5.8	7.4
Hispanic	2.9	3.7	1.4	4.4	3.7	2.2	2.4	1.3	5.8	0.0
Black	12.5	14.6	17.8	8.9	13.6	13.0	14.5	8.0	9.6	4.4
Other *	1.0	1.2	1.4	1.1	1.2	1.1	2.4	2.7	3.8	0.0
Unknown	1.9	3.7	2.7	5.6	3.7	3.3	6.0	2.7	0.0	4.4

* Other - Arab/West Asian and other/mixed ethnicity

27. New HIV diagnoses among HET in BC by identified risk factor, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
HET-IR	62	54	44	49	51	53	47	43	28	33
HET-NIR	42	28	29	41	30	39	36	32	24	35
Total	104	82	73	90	81	92	83	75	52	68

HET-IR - heterosexual contact with at least one other risk factor identified
HET-NIR - heterosexual contact with no other risk factor identified

HIV in Pregnancy

In this report, we present data from two information sources to describe HIV infection among pregnant women in BC: data from prenatal HIV testing and data from the Oak Tree Clinic (OTC). The OTC provides antenatal care directly or indirectly to essentially all pregnant women with HIV infection in BC. There are rare cases that are not reported to the OTC until after delivery and these data are included in this report.

There are important differences between these two data sources that need to be understood in order to interpret the data correctly:

- Prenatal HIV tests - The number of women having at least one prenatal HIV test per year are assigned to the year in which the HIV test was performed and these data include all pregnant women (including women who do and do not have a live birth). These data come from laboratory and surveillance data which have established limitations to data quality (see Technical Appendix for details).

- Surveillance data collated by the Oak Tree Clinic - Includes pregnant women accessing care who have a live birth. The year assigned is based on the infant's year of birth. These data come from clinical data abstraction for women for whom the OTC provides direct or indirect antenatal HIV care or for those that are reported following delivery (estimated at close to complete coverage of all pregnant women with HIV infection in BC).

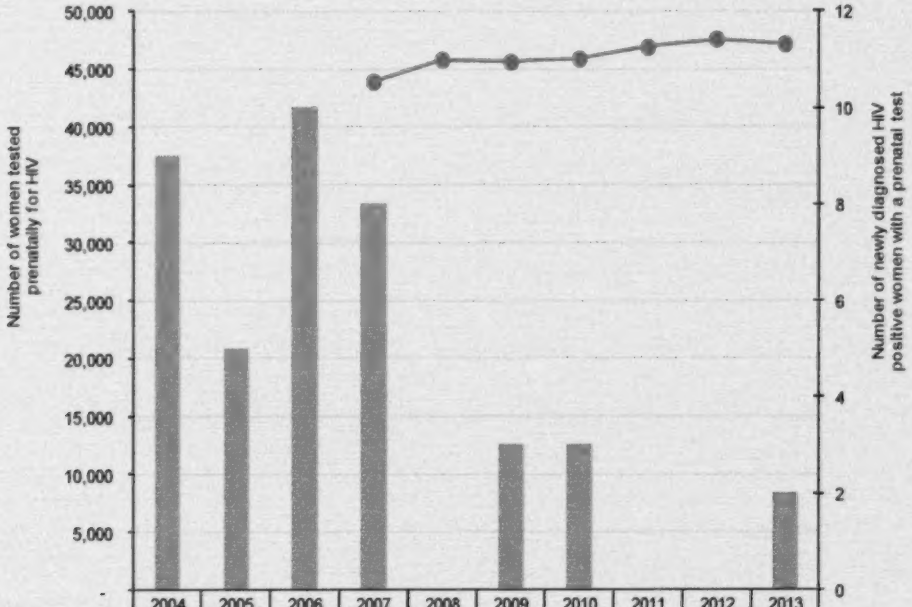
For these reasons, these two data sources are not directly comparable. However, taken together these data provide a more comprehensive overview of HIV in pregnancy in BC.

Prenatal HIV Testing

In 2013, 47,173 women were tested prenatally for HIV. Overall the number of women being tested prenatally each year in BC is increasing slightly.

Between 2004 and 2013, 40 women were newly diagnosed as HIV positive through prenatal screening. The number of women diagnosed with HIV through prenatal screening decreased after 2007 and remains low (Figure 28). There were two women newly diagnosed with HIV in 2013 through prenatal screening.

28. Women newly diagnosed with HIV as part of a prenatal test panel in BC, 2004 to 2013



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Newly diagnosed HIV positive women with a prenatal test	9	5	10	8	0	3	3	0	0	2
Total number of women tested prenatally for HIV				43,918	45,816	45,621	45,885	46,900	47,597	47,173

Information source for the number of women tested prenatally for HIV is the BC Public Health Microbiology & Reference Laboratory (BCPHMRL) located at the BC Centre for Disease Control. Prenatal test data are not available prior to 2007.

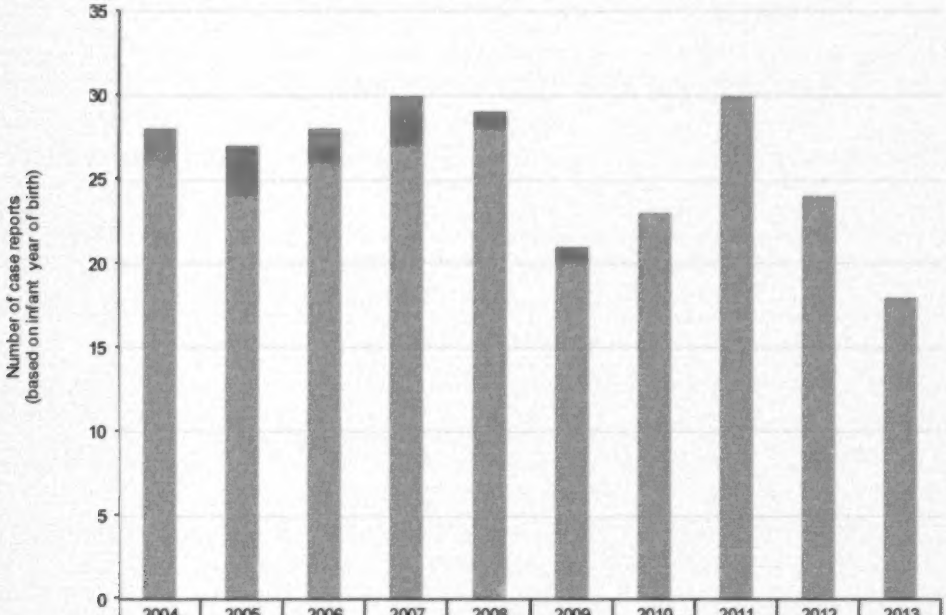
Pregnant Women with HIV

The Oak Tree Clinic (OTC) at BC Children's and Women's Hospital directly or indirectly provides antenatal care for pregnant women with HIV infection and their children, including antenatal highly active antiretroviral therapy (HAART) for the prevention of mother to child transmission of HIV.

In the absence of antenatal HAART, the transmission rate of HIV to infants born to HIV positive women is estimated at 25%. Between 2004 and 2013, 258 HIV positive pregnant women having live births accessed care at OTC, ranging from 18 to 30 women per year.

The majority of women were diagnosed with HIV before conception or delivery (254/258, 98.4%). Of these 254 women, 246 (96.9%) received antenatal HAART prior to delivery and HIV was not diagnosed in any infants born to these women (transmission rate 0% among women accessing antenatal HAART) (Figure 29).

29. HIV positive pregnant women having live births and accessing care at Oak Tree Clinic, 2004 to 2013 (based on infant's year of birth)



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Dx at/after delivery	2	0	1	1	0	0	0	0	0	0
Dx before delivery, no HAART	0	3	1	2	1	1	0	0	0	0
Dx before delivery,HAART	26	24	26	27	28	20	23	30	24	18

Dx before delivery, no HAART - diagnosed before delivery, did not receive antenatal HAART
Dx before delivery, HAART - diagnosed before delivery, received antenatal HAART

Perinatally Acquired HIV

From 2004 to 2013, perinatally acquired HIV infection was diagnosed in two infants born in BC (2006 and 2008) to women who did not receive antenatal HAART prior to delivery.

Stage of Infection at Time of HIV Diagnosis

As diagnosis can occur weeks to years after infection with HIV, individuals are at different stages of HIV infection at the time of diagnosis. Understanding the trends in stage of infection at HIV diagnosis provides insights into the timeliness of engagement in and access to HIV testing following infection.

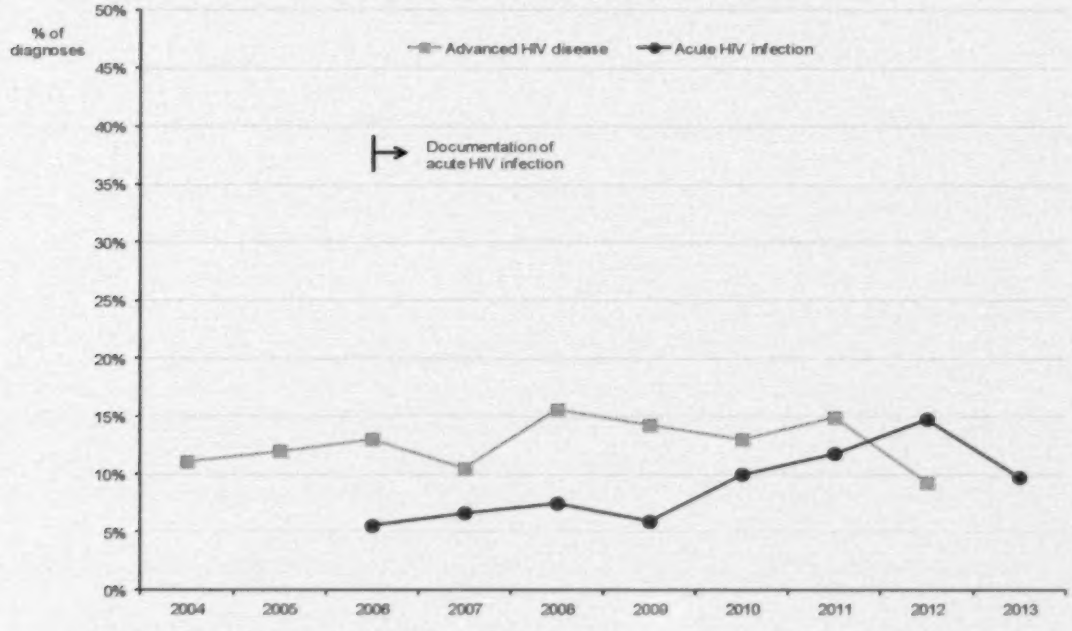
Acute HIV Infection

Individuals diagnosed with acute HIV infection have tested within the first 6 to 8 weeks after infection with HIV (detected through characteristic patterns of laboratory HIV tests). Individuals with acute HIV infection have high blood viral loads and are more likely to transmit HIV to others compared to individuals at other stages of HIV infection. In some areas it's estimated that up to 50% of all new HIV infections are related to transmission from an individual with acute infection.[12] As knowledge of one's HIV status typically results in behaviour change that reduces the risk of transmission, strategies to improve the detection of acute HIV infection are important. In 2013, 9.7% (26 cases) of new HIV diagnoses were acute (Figure 30). The increase in percent of acute HIV infections since 2010 is in part due to the implementation of pooled nucleic acid amplification testing for HIV, which is more effective at detecting acute HIV infection, at targeted clinics in Vancouver with MSM clients as part of a study led by BCCDC. In 2013, 73.1% (19 cases) of all acute HIV infections were among MSM.[13] The increasing percentage of newly diagnosed individuals with acute HIV infection may also reflect changes in testing patterns towards diagnosis at an earlier stage of infection in some groups.

Advanced HIV Disease

Individuals with advanced HIV disease at diagnosis have tested years after their initial infection with HIV. Diagnosis at an advanced stage of HIV disease is associated with both poorer individual clinical outcomes as well as potentially reduced population benefit due to persistent, undiagnosed infection. The percentage of newly diagnosed individuals with advanced HIV disease at diagnosis decreased in BC from 14.9% (43 cases) in 2011 to 9.3% (22 cases) in 2012 (Figure 30), however, the overall trend is relatively stable. This percentage may be an underestimate due to under-reporting of AIDS cases.

30. Stage of infection at time of HIV diagnosis in BC, 2004 to 2013



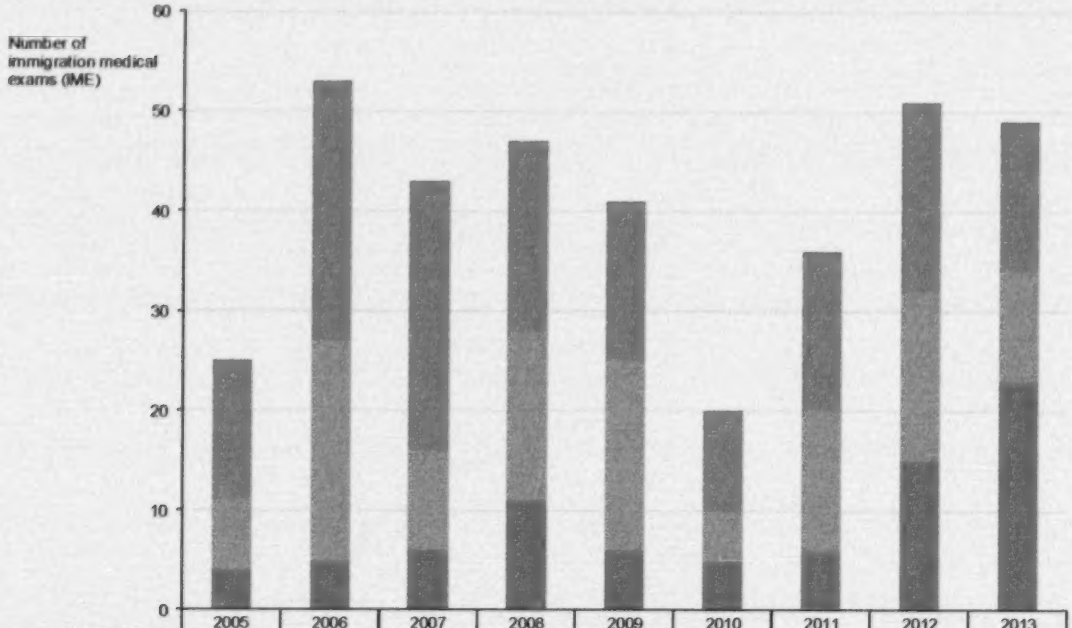
Data for acute HIV infections are available from 2006 onwards.
Data for advanced HIV infection are only presented to 2012 due to expected delays in AIDS case reports which is required to identify advanced HIV disease.

Immigration of Individuals with HIV

In 2002, Citizenship and Immigration Canada (CIC) included HIV testing as part of the immigration medical examination (IME) required for all immigration applications, Convention refugees, and refugee claimants. As of September 2004, CIC notifies Clinical Prevention Services at BCCDC of individuals who undergo an IME outside of Canada, test positive for HIV, and indicate BC as their intended province of residence. Individuals who undertake their IME within BC and test positive for HIV are reported to BCCDC through the routine surveillance system.

The number of HIV positive individuals immigrating into BC varies annually and may reflect global migration patterns. In 2013, a total of 49 HIV positive immigrants arrived in BC, 11 (22.4%) coming from countries where HIV is considered to be endemic (Figure 31).

31. Immigration-related HIV diagnoses from endemic and non-endemic countries, 2005 to 2013



	2005	2006	2007	2008	2009	2010	2011	2012	2013
Non-Endemic Countries	14	26	27	19	16	10	16	19	15
Endemic Countries	7	22	10	17	19	5	14	17	11
Country Unspecified	4	5	6	11	6	5	6	15	23

Estimates of HIV Incidence and Prevalence

The HIV surveillance data presented in this report are based on individuals with a new positive HIV test (or new HIV diagnosis). Individuals who have undiagnosed HIV infection and have not yet tested are not captured in the data. Furthermore, a person with a new positive test for HIV can be diagnosed months or years after the time that they became infected with HIV. For these reasons, HIV surveillance data based on new positive HIV tests do not provide accurate information on HIV incidence (i.e., the number of new infections in a one-year period, both diagnosed and undiagnosed) or prevalence (i.e., the number of people living with HIV). Knowing incidence and prevalence is important in order to monitor the HIV epidemic and to guide the development and evaluation of HIV-related prevention, treatment, care, and support programs.

Based on HIV surveillance data and using multiple estimation methods, the Public Health Agency of Canada (PHAC) generates periodic national estimates of HIV incidence and prevalence. To arrive at national estimates[14], specific estimates for provinces, including BC, are generated.

In BC, estimates of the total number of incident or new HIV infections in 2011 was 380 (range 260 to 500 cases), a decrease from 408 (280 to 540 cases) in 2008 (Table 32). The estimate of prevalent HIV infections or the total number of people living with HIV in the province at the end of 2011 was 11,700 (range 9,400 to 14,000 cases), an increase from 11,040 (8,880 to 13,200 cases) at the end of 2008 (Table 33).

In 2011, gay, bisexual, and other men who have sex with men (MSM) continued to comprise the greatest proportion of incident and prevalent HIV infections, followed by people who inject drugs (PWID) among people living with HIV, and heterosexual persons (from countries where HIV is not endemic) among new HIV infections.[15]

32. Estimated number of incident HIV infections in BC by exposure category, 2008 & 2011

Exposure Category	2008			2011		
	Number	Range	% of Total	Number	Range	% of Total
MSM	195	130 - 260	48%	206	140 - 270	54%
MSM-PWID	15	10 - 20	4%	12	10 - 20	3%
PWID	105	70 - 140	26%	60	40 - 80	16%
HET (non-endemic)	83	50 - 120	20%	89	60 - 120	23%
HET (endemic)	10	< 20	2%	13	10 - 20	3%
Other		<10	—		<10	—
All	408	280 - 540		380	260 - 500	

33. Estimated number of prevalent HIV infections in BC by exposure category, 2008 & 2011

Exposure Category	2008			2011		
	Number	Range	% of Total	Number	Range	% of Total
MSM	4,540	3,580 - 5,500	41%	4,950	3,900 - 6,000	42%
MSM-PWID	350	240 - 460	3%	370	260 - 480	3%
PWID	3,640	2,780 - 4,500	33%	3,640	2,780 - 4,500	31%
HET (non-endemic)	2,035	1,570 - 2,500	18%	2,240	1,680 - 2,800	19%
HET (endemic)	345	240 - 450	3%	370	240 - 500	3%
Other	130	80 - 180	1%	130	90 - 170	1%
All	11,040	8,880 - 13,200		11,700	9,400 - 14,000	

MSM - men who have sex with men
PWID - people who inject drugs
HET (non-endemic) - heterosexual contact with a person who is either HIV-infected or at risk for HIV or heterosexual as the only identified risk
HET (endemic) - heterosexual contact and origin from a country where HIV is endemic
Other - recipients of blood transfusion or clotting factor, perinatal, or occupational transmission

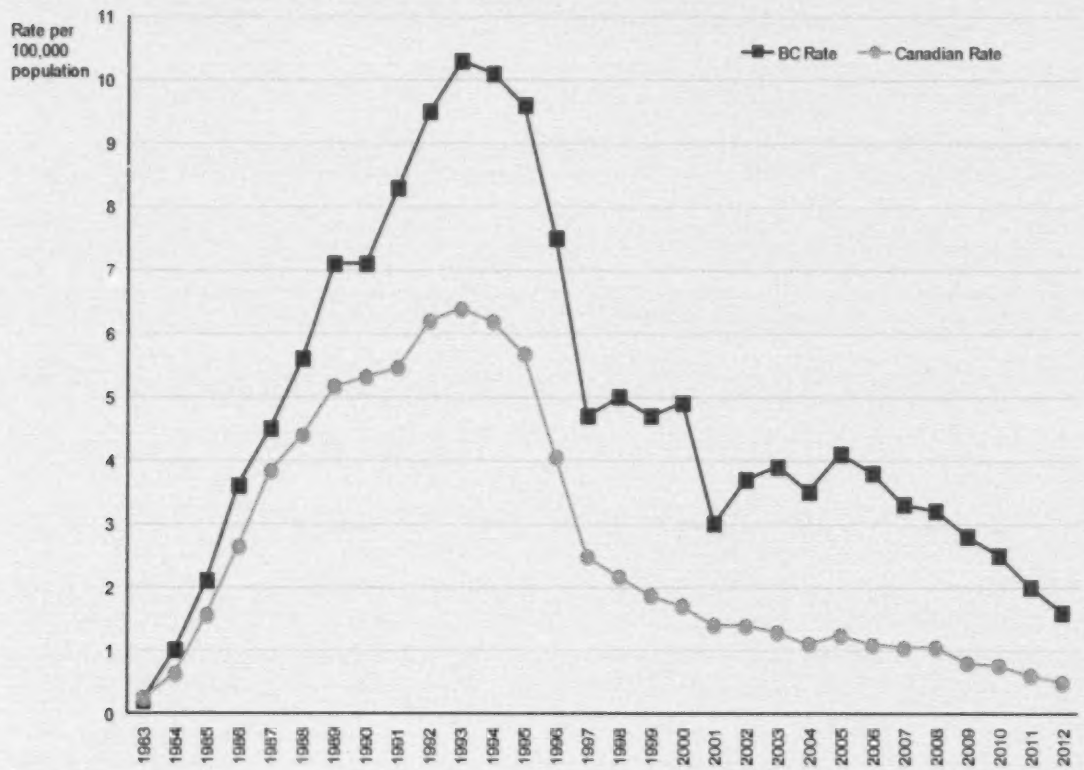
AIDS by Region, Gender, and Age

The AIDS surveillance system relies on clinicians reporting the case to Clinical Prevention Services at BCCDC. In BC, the majority of AIDS cases are reported through the Provincial HIV Treatment Program at the BC Centre for Excellence in HIV/AIDS which has comprehensive clinical data on all individuals accessing highly active antiretroviral therapy (HAART) in BC.

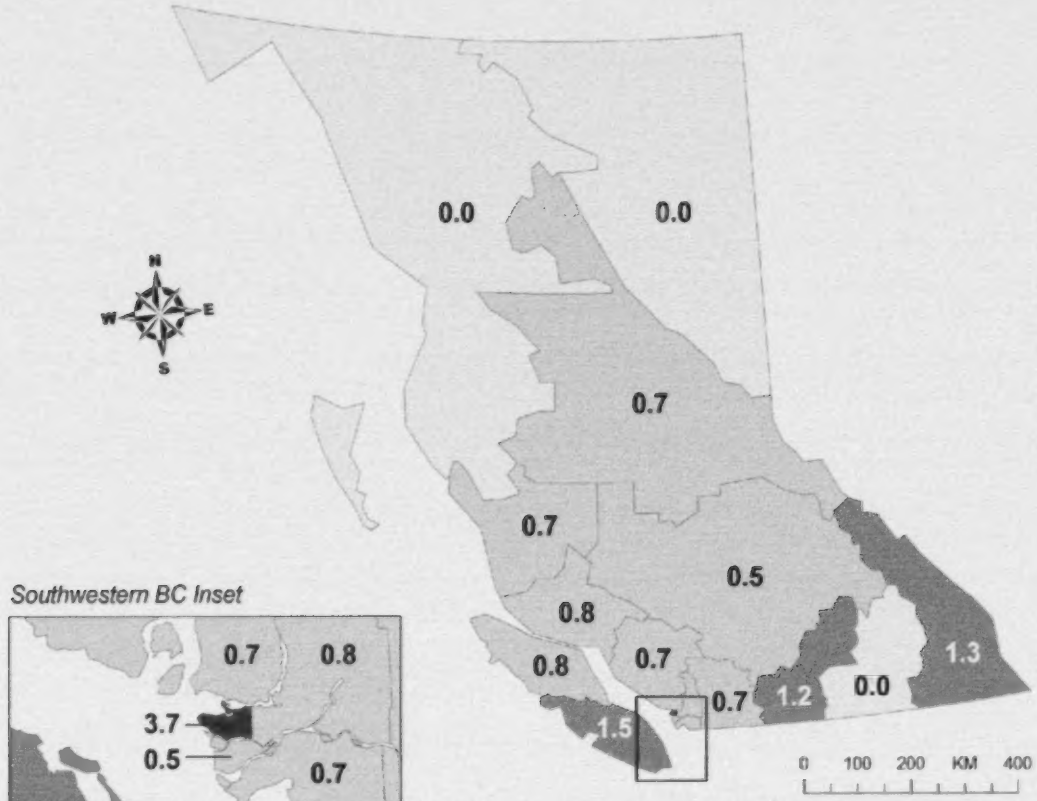
The rate of AIDS and the number of AIDS case reports per year have decreased from a peak in 1993 due primarily to advances in HIV treatment which includes HAART. The rate of AIDS in BC continued to decrease in 2012 to 1.6 (73 cases) from 2.0 (90 cases) per 100,000 population in 2011 and remains approximately three times higher than the Canadian rate (Figure 34). This difference from the national rate may represent greater ascertainment of AIDS cases in BC due to reporting by the Provincial HIV Treatment Program. Rates are variable by Health Service Delivery Area (HSDA) per year and are influenced by the small number of cases in most regions. In 2012, the highest rate was reported in Vancouver HSDA (Figure 35).

The rate of AIDS among males continues to be greater than the rate among females which likely reflects the distribution of HIV between males and females in BC (Figure 37). Rates among males have been gradually decreasing while rates in females overall appear relatively stable. The majority of new AIDS case reports are in people of Caucasian ethnicity. As with new HIV diagnoses, Aboriginal Peoples continue to be disproportionately represented among AIDS cases in BC, comprising 6.8% (5) of new cases in 2012 (Table 42) but only 5% of the total provincial population.[16]

34. AIDS case reports in BC and Canada, 1983 to 2012



35. AIDS case reports in BC by health service delivery area, 2012



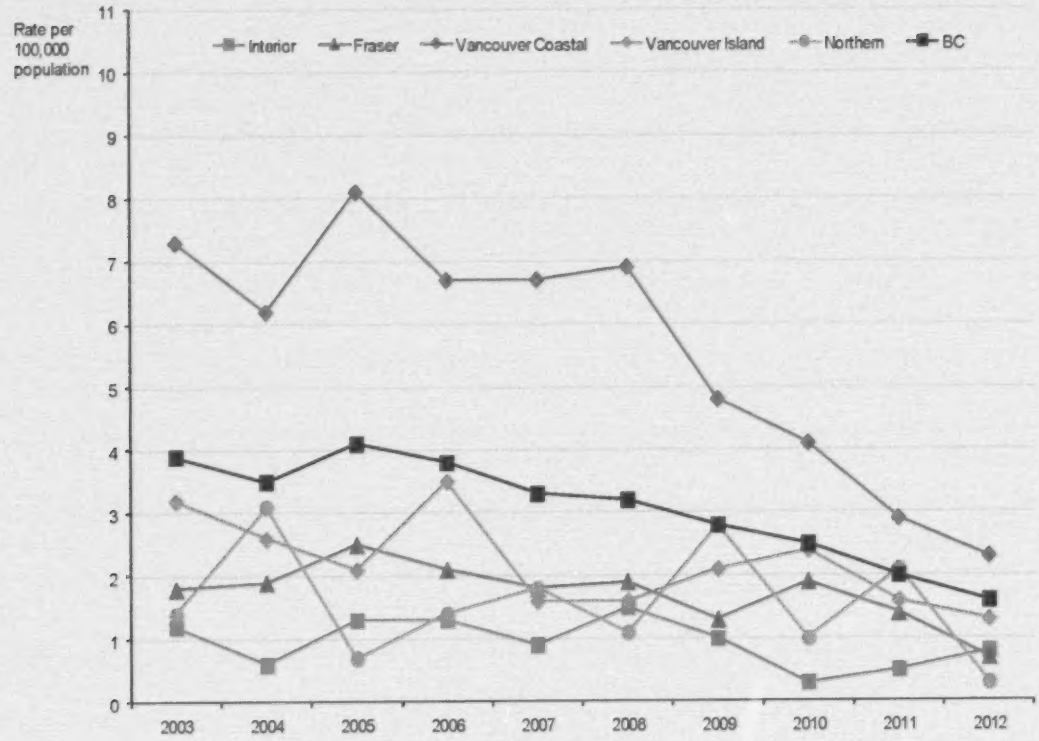
Rate per 100,000 population by HSDA

- 0.0
- 0.5 - 0.8
- 1.2 - 1.5
- 3.7

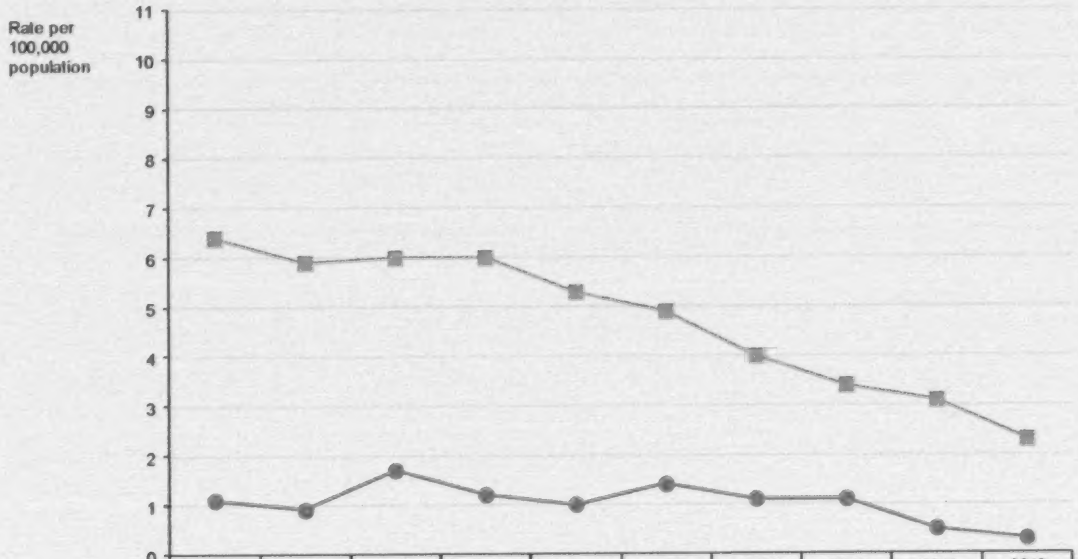
ID	Health Service Delivery Area	Cases	Rate
11	East Kootenay	1	1.3
12	Kootenay Boundary	0	0.0
13	Okanagan	4	1.2
14	Thompson Cariboo Shuswap	1	0.5
21	Fraser East	2	0.7
22	Fraser North	5	0.8
23	Fraser South	5	0.7
31	Richmond	1	0.5
32	Vancouver	24	3.7
33	North Shore/Coast Garibaldi	2	0.7
41	South Vancouver Island	5	1.3
42	Central Vancouver Island	4	1.5
43	North Vancouver Island	1	0.8
51	Northwest	0	0.0
52	Northern Interior	1	0.7
53	Northeast	0	0.0

Rates calculated with population estimates released by BC Stats

36. AIDS case reports in BC by health authority, 2003 to 2012



37. AIDS case reports in BC by gender, 2003 to 2012



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Reports - Female	22	19	35	26	21	31	24	26	11	8
Reports - Male	130	121	124	127	113	107	88	76	71	52
Reports - Other *	8	6	14	9	9	4	12	9	8	13
Rate - Female	1.1	0.9	1.7	1.2	1.0	1.4	1.1	1.1	0.5	0.3
Rate - Male	6.4	5.9	6.0	6.0	5.3	4.9	4.0	3.4	3.1	2.3

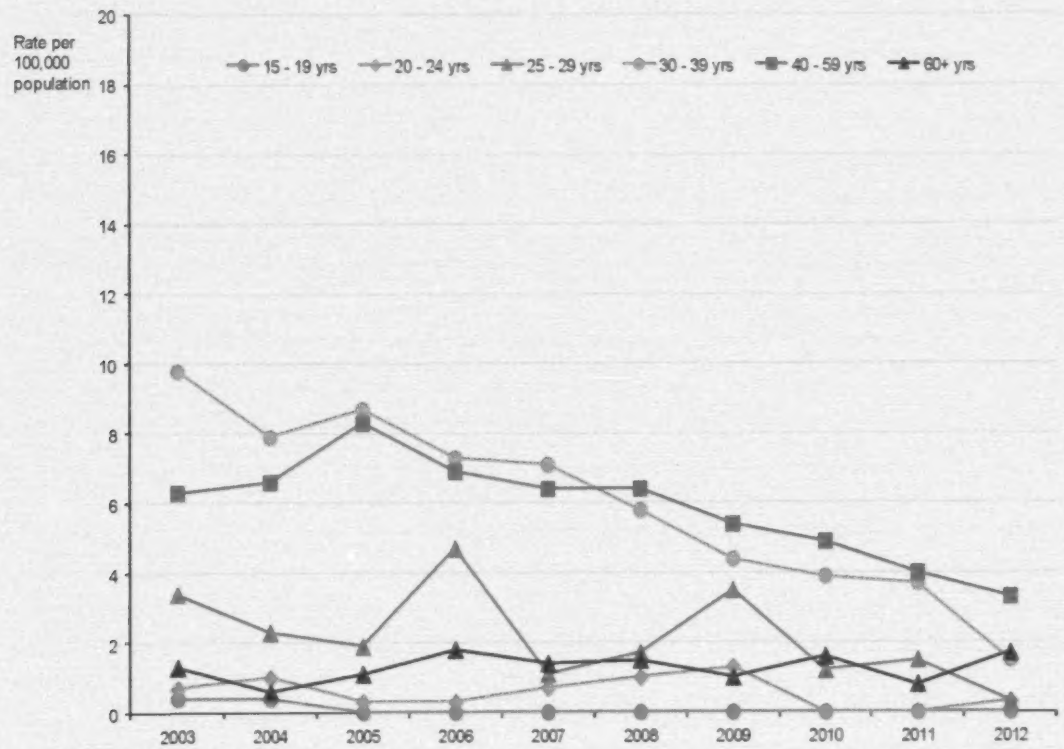
* Other - transgender and gender unknown

38. AIDS case reports in BC by age group and gender, 2012

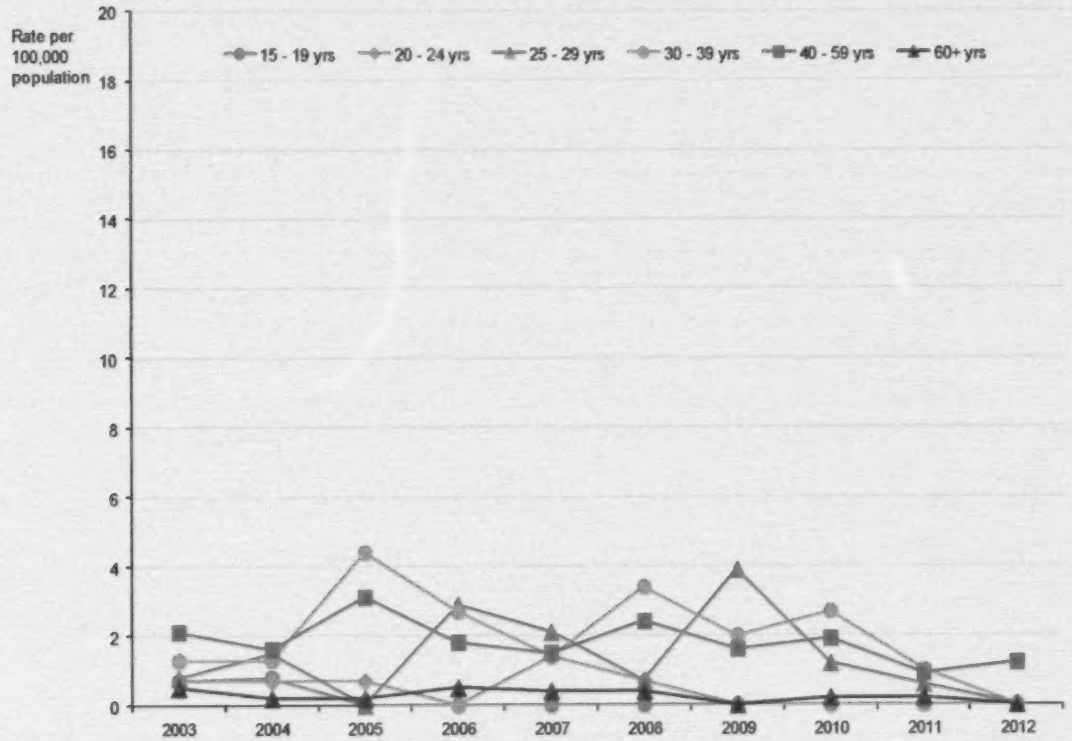
	15 - 19 yrs	20 - 24 yrs	25 - 29 yrs	30 - 39 yrs	40 - 59 yrs	60+ yrs
Reports - Female	0	0	0	0	8	0
Reports - Male	0	1	1	9	29	12
Reports - Other *	0	0	0	0	8	5
Rate - Female	0.0	0.0	0.0	0.0	1.2	0.0
Rate - Male	0.0	0.6	0.6	3.0	4.3	2.5

* Other - transgender and gender unknown

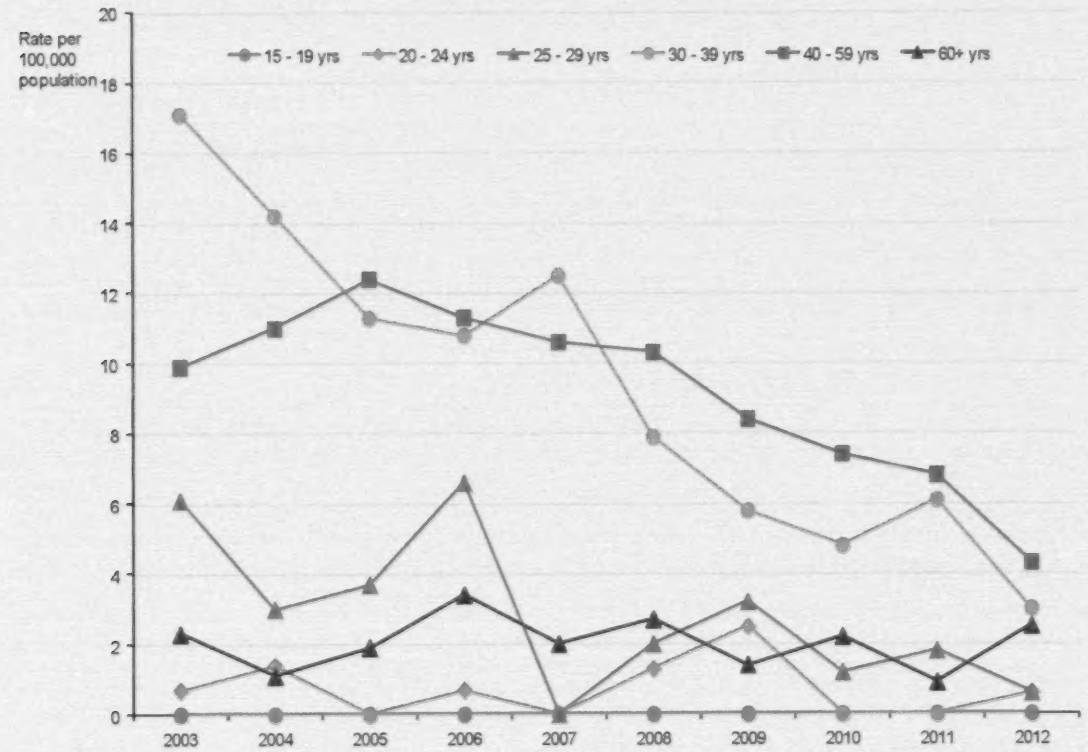
39. AIDS case reports in BC by age group - total, 2003 to 2012



40. AIDS case reports in BC by age group - female, 2003 to 2012



41. AIDS case reports in BC by age group - male, 2003 to 2012



AIDS by Ethnicity

42. Percentage of AIDS case reports in BC by ethnicity - total, 2003 to 2012

Ethnicity	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of Diagnoses	*160*	*146*	*173*	*162*	*143*	*142*	*124*	*111*	*90*	*73*
Caucasian	48.1	45.2	46.8	48.1	49.0	52.1	47.6	51.4	38.9	43.8
Aboriginal	13.1	13.0	13.3	12.3	14.7	10.6	18.5	16.2	12.2	6.8
Asian	4.4	5.5	2.3	0.6	2.1	2.8	4.8	5.4	7.8	8.2
South Asian	2.5	1.4	1.2	0.6	2.1	2.1	0.8	0.9	5.6	4.1
Hispanic	1.9	0.0	2.3	1.9	2.8	2.8	0.8	0.9	1.1	1.4
Black	5.6	4.8	2.3	3.7	2.1	4.9	1.6	2.7	4.4	1.4
Other *	0.6	1.4	0.0	1.2	0.7	0.7	0.0	0.0	1.1	1.4
Unknown	23.8	28.8	31.8	31.5	26.6	23.9	25.8	22.5	28.9	32.9

* Other - Arab/West Asian and other/mixed ethnicity

43. Percentage of AIDS case reports in BC by ethnicity - female, 2003 to 2012

Ethnicity	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of Diagnoses	*22*	*19*	*35*	*26*	*21*	*31*	*24*	*26*	*11*	*8*
Caucasian	40.9	42.1	37.1	42.3	42.9	45.2	37.5	46.2	45.5	25.0
Aboriginal	27.3	26.3	17.1	26.9	33.3	19.4	29.2	30.8	27.3	12.5
Asian	0.0	5.3	0.0	0.0	0.0	3.2	0.0	0.0	9.1	0.0
South Asian	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hispanic	4.5	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	12.5
Black	9.1	5.3	5.7	7.7	9.5	6.5	0.0	3.8	9.1	12.5
Other *	0.0	5.3	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0
Unknown	18.2	15.8	37.1	23.1	9.5	25.8	33.3	15.4	9.1	37.5

* Other - Arab/West Asian and other/mixed ethnicity

44. Percentage of AIDS case reports in BC by ethnicity - male, 2003 to 2012

Ethnicity	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
No. of Diagnoses	*130*	*121*	*124*	*127*	*113*	*107*	*88*	*76*	*71*	*52*
Caucasian	52.3	47.9	54.8	52.8	54.0	56.1	56.8	59.2	42.3	57.7
Aboriginal	11.5	11.6	13.7	10.2	12.4	8.4	18.2	13.2	11.3	7.7
Asian	5.4	5.8	3.2	0.8	2.7	2.8	6.8	7.9	8.5	11.5
South Asian	3.1	1.7	0.8	0.8	2.7	2.8	1.1	1.3	7.0	5.8
Hispanic	1.5	0.0	3.2	2.4	3.5	3.7	1.1	0.0	1.4	0.0
Black	5.4	5.0	1.6	3.1	0.9	4.7	2.3	2.6	4.2	0.0
Other *	0.8	0.8	0.0	1.6	0.0	0.9	0.0	0.0	1.4	1.9
Unknown	20.0	27.3	22.6	28.3	23.9	20.6	13.6	15.8	23.9	15.4

* Other - Arab/West Asian and other/mixed ethnicity

AIDS Case Reports among Aboriginal Peoples

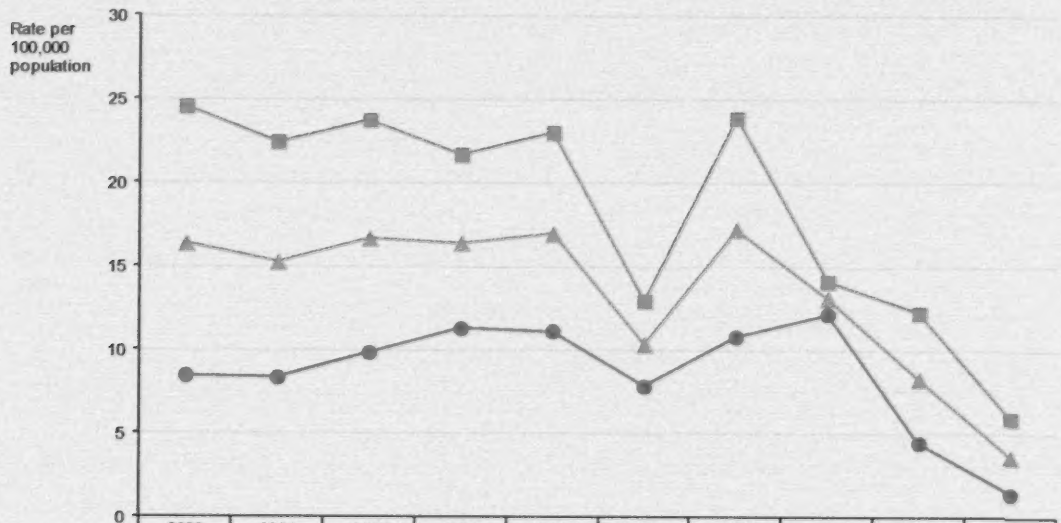
As with new HIV diagnoses, the majority of new AIDS case reports among Aboriginal Peoples are in those who identify as First Nations (5 cases in 2012). Three or fewer new AIDS cases were reported per year among Métis and Inuit people between 2003 and 2012.

Mirroring the provincial AIDS rate (Figure 34), the rate of new AIDS case reports among First Nations people has decreased since 2007 (Figure 45). The recent reduction of people living with advanced HIV disease and AIDS highlights the success of improving access to HIV testing, treatment, and care.

Between 2003 and 2012, the rate of reported AIDS cases has been consistently higher among First Nations people in BC compared to the BC population overall. This may be due to systematic barriers for First Nations people to access HIV services including stigma, geographic and social isolation, racism, and poverty.[17]

The AIDS rate in First Nations men has been consistently higher than the rate in women; however, this gap has been narrowing in recent years as the number of reported AIDS cases decreases (Figure 45).

45. AIDS case reports among First Nations people in BC by gender, 2003 to 2012



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Reports - Female	5	5	6	7	7	5	7	8	3	1
Reports - Male	14	13	14	13	14	8	15	9	8	4
Reports - Other *	0	0	0	0	0	0	0	0	0	0
Reports - Total	19	18	20	20	21	13	22	17	11	5
Rate - Female	8.5	8.3	9.8	11.3	11.1	7.8	10.8	12.2	4.5	1.4
Rate - Male	24.5	22.4	23.7	21.7	23.0	12.9	23.9	14.1	12.2	5.9
Rate - Total	16.4	15.3	16.7	16.4	16.9	10.3	17.2	13.1	8.3	3.7

* Other - transgender and gender unknown
Rates based on First Nations population estimates from Aboriginal Affairs and Northern Development Canada (AANDC)

Endnotes

[1] In this report, the term "new HIV diagnoses" is used instead of the term "persons testing newly positive for HIV" which was used in previous reports. Both terms are equivalent for surveillance purposes for describing cases.

[2] For more information about the STOP HIV/AIDS project, including reports on program indicators related to HIV diagnosis see: STOP HIV/AIDS Pilot Project website http://www.stophivaids.ca/

[3] BC Stats. Census Statistical Profiles of Aboriginal Peoples, 2006. Retrieved from http://www.bcstats.gov.bc.ca/statisticsbysubject/AboriginalPeoples/CensusProfiles.aspx

[4] See Endnote #3

[5] For more information about the multiple historic factors which have contributed to inequities in health among Aboriginal Peoples see: BC Provincial Health Officer. (2009). Pathways to Health and Healing: 2nd Report on the Health and Well-being of Aboriginal People in British Columbia. Provincial Health Officer's Annual Report 2007. Retrieved from http://www.health.gov.bc.ca/pho/reports/annual.html

[6] For examples of successful community approaches to address HIV prevention, care, treatment, and support see: Chee Mamuk, BCCDC. (2009). A guide to Wise Practices for HIV/AIDS education and prevention programs. Retrieved from http://www.bccdc.ca/NR/rdonlyres/0DFB72E1-9AF1-43CA-BD62-CF5CC8F66305/0/CheeMamukWisePracticesGuide.pdf

[7] For more information about the community survey of MSM in Victoria see: M-Track Victoria, Phase I-Final Report, May 1, 2008. Retrieved from http://www.viha.ca/NR/rdonlyres/FBBE9AFA-313C-46B4-A017-6730FEEA1865/0/MTrack_Victoria_Final_Report_May_2008_Revised.pdf

[8] For more information about the community survey of MSM in Vancouver see: ManCount study website http://www.mancount.ca/

[9] For more information about factors that have led to the current epidemic of HIV among MSM in BC see: Provincial Health Officer. (2014). HIV, Stigma and Society: Tackling a Complex Epidemic and Renewing HIV Prevention for Gay and Bisexual Men in British Columbia. Provincial Health Officer's 2010 Annual Report. Retrieved from http://www.health.gov.bc.ca/pho/pdf/hiv-stigma-and-society.pdf

[10] References to broader approaches to HIV prevention in MSM: Wolitski R, Fenton K. (April 2011). Sexual health, HIV, and sexually transmitted infections among gay, bisexual, and other men who have sex with men in the United States. *AIDS and Behavior 15*(Suppl 1), 9-17. / Mayer KH, Bekker L-G, Stall R, Grulich AE, Colfax G, Lama, JR. (July 2012). Comprehensive clinical care for men who have sex with men: an integrated approach. *The Lancet, 380*(9839), 378-87.

[11] For more information on potential explanations for the decrease of new HIV diagnoses among people injecting drugs in BC see: Office of the Provincial Health Officer. (2011, March). Decreasing HIV infections among people who use drugs by injection in British Columbia: Potential explanations and recommendations for further action. Retrieved from http://www.health.gov.bc.ca/library/publications/year/2011/decreasing-HIV-in-IDU-population.pdf

[12] References to individuals with acute HIV infection are more likely to transmit HIV to others compared to individuals at other stages of HIV infection: Cohen MS, Shaw GM, McMichael AJ, Haynes BF. (2011). Acute HIV-1 infection. *New England Journal of Medicine, 364*(20), 1943-54. / Brenner BG, Roger M, Routy J-P, Moisi D, Ntemgwa M, Matte C, et al. (2007). High rates of forward transmission events after acute/early HIV-1 infection. *The Journal of Infectious Diseases, 195*(7), 951-9

[13] For more information on the Study of Acute HIV Infection in Gay Men study see: Canadian Institute of Health Research (CIHR) Team website http://www.acutehivstudy.com/

[14] For further details on national estimates of HIV incidence and prevalence see: Yang Q, Boulos D, Yan P, Zhang F, Remis RS, Schanzer D, Archibald CP. (2010). Estimates of the number of prevalent and incident Human Immunodeficiency Virus (HIV) infections in Canada, 2008. *Canadian Journal of Public Health, 101*(6), 486-490 / see Public Health Agency of Canada website http://www.phac-aspc.gc.ca/aids-sida/publication/survreport/estimat08-eng.php

[15] HIV incidence and prevalence estimates from 2008 and 2011 provided courtesy of the Surveillance and Epidemiology Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada.

[16] See Endnote #3

[17] For more information on the systematic barriers for First Nations people to access HIV services see: National Collaborating Centre for Aboriginal Health. (2011). Access to health services as a social determinant of First Nations, Inuit and Métis health. Retrieved from http://www.nccah-ccnsa.ca/docs/fact%20sheets/social%20determinates/Access%20to%20Health%20Services_Eng%202010.pdf

[18] For a list of the endemic countries maintained by the Public Health Agency of Canada see: Public Health Agency of Canada. (2014). HIV and AIDS in Canada: Surveillance report to December 31, 2013 – Appendix 4. Minister of Public Works and Government Services Canada; 2014. Retrieved from http://www.phac-aspc.gc.ca/aids-sida/publication/survreport/2013/dec/assets/pdf/hiv-aids-surveillence-eng.pdf

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- Staff from the BC Public Health Microbiology & Reference Laboratory (BCPHMRL), located at BCCDC, for the collecting and compiling of HIV requisition data.
- Designated public health nurses in the Health Service Delivery Areas for data collection as part of follow-up to persons testing newly positive for HIV.
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- Oak Tree Clinic at BC Children's and Women's Hospital for providing provincial surveillance data on HIV positive pregnant women having live births.
- Surveillance and Epidemiology Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada for providing the national HIV and AIDS rates and the estimates of HIV incidence and prevalence.

Technical Appendix

Data Limitations

There are several key limitations to surveillance data which are important to understand in order to interpret surveillance data appropriately.

- The majority of surveillance data presented in this report are extracted from case report forms completed by either health care providers or public health nurses as part of the follow-up process (which includes partner notification, patient education, and referral to appropriate services). There is an expected reporting delay to receipt of these forms. For HIV data this affects the classification of cases by exposure category and ethnicity, resulting in a number of cases for the most recent year where this information is unknown. These numbers are not considered final until next year's report. For AIDS data, there is typically a one year reporting delay and thus data are presented for the previous year only.
- Surveillance trends can be affected by factors which do not represent a true increase or decrease in infection rates. For example, trends are influenced by patient or provider testing behaviours which may result in changes to the number of tests performed each year.
- Surveillance data are only reflective of the proportion of the population who test for HIV. Individuals with infections who have not tested would not be represented in surveillance data.
- Cases are classified by exposure category and ethnicity according to information elicited during follow-up from the case or their health care provider and under-reporting of this information may lead to misclassification.
- HIV is reported as the number of new HIV diagnoses and does not reflect the number of new HIV infections (i.e., HIV incidence) as individuals may test positive years after the time of HIV infection.
- The system of enhanced follow-up for HIV was established following the addition of HIV to the reportable diseases list in 2003 and has resulted in improved data quality in subsequent years (for details see "Interpretation of HIV Data" in the Additional Notes section of this Technical Appendix).
- Rates of new HIV diagnoses or AIDS cases among First Nations people are calculated with the numerator comprised of individuals with HIV or AIDS who self identify as First Nations and the denominator comprised of individuals who are registered First Nations in BC.

Case Definitions

HIV and AIDS are listed as reportable diseases in the *Communicable Disease Regulation* (Schedule A) of the *Public Health Act*.

Human Immunodeficiency Virus (HIV)

Adults, adolescents, and children ≥ 18 months: Detection of HIV antibody by screening test (i.e., ELISA or point of care HIV test) followed by positive confirmatory test (i.e., Western blot or nucleic acid amplification test), or detection of HIV nucleic acid (RNA or DNA) or detection of p24 antigen with confirmation by neutralization assay, or isolation of HIV in culture.

Children < 18 months: Detection of HIV DNA by nucleic acid amplification testing (NAAT) on two separate samples collected at different times.

Stage of Infection at Time of HIV Diagnosis

Acute HIV Infection: Meets definition for HIV case, and has laboratory findings suggestive of acute HIV infection in the absence of confirmed detection of HIV antibody (i.e., detection of HIV DNA or RNA by NAAT, detection of p24 antigen with confirmation by neutralization assay), and is not diagnosed with AIDS before or up to 12 months after the date of first positive HIV test.

Advanced HIV Disease: Meets definition for HIV case, and is diagnosed with AIDS (based on receipt of an AIDS case report form) before or up to 12 months after the date of the first positive HIV test.

Other/Unknown Stage: Meets the definition for HIV case, and does not meet the definitions for acute HIV infection or advanced HIV disease at the time of HIV diagnosis.

Acquired Immune Deficiency Syndrome (AIDS)

One or more of the specified indicator diseases, and meets the case definition for HIV infection.

Indicator diseases for adult and pediatric cases:

- Bacterial pneumonia (recurrent)*
- Candidiasis (bronchi, trachea or lungs)
- Candidiasis (esophageal)*
- Cervical cancer (invasive)
- Coccidioidomycosis (disseminated or extrapulmonary)
- Cryptococcosis (extrapulmonary)
- Cryptosporidiosis (chronic intestinal > 1 month duration)
- Cytomegalovirus disease (other than in liver, spleen or nodes)
- Cytomegalovirus retinitis (with loss of vision)*
- Encephalopathy, HIV-related (dementia)
- Herpes simplex: chronic ulcer(s) (> 1 month duration) or bronchitis, pneumonitis or esophagitis
- Histoplasmosis (disseminated or extrapulmonary)
- Isosporiasis, chronic intestinal (> 1 month duration)
- Kaposi's sarcoma*
- Lymphoma, Burkitt's (or equivalent term)
- Lymphoma, immunoblastic (or equivalent term)
- Lymphoma (primary in brain)
- Mycobacterium avium complex or M. kansasii (disseminated or extrapulmonary)*
- Mycobacterium of other species or unidentified species*
- M. tuberculosis (disseminated or extrapulmonary)
- M. tuberculosis (pulmonary)*
- Pneumocystis jirovecii (formerly Pneumocystis carinii) pneumonia (PCP)*
- Progressive multifocal leukoencephalopathy
- Salmonella septicemia (recurrent)
- Toxoplasmosis of brain*
- Wasting syndrome due to HIV

* These conditions may be diagnosed presumptively, otherwise definitive diagnosis is required.

Indicator diseases that apply only to pediatric cases (< 15 years old):

- Bacterial infections, multiple or recurrent (excluding recurrent bacterial pneumonia)
- Lymphoid interstitial pneumonia and/or Pulmonary lymphoid hyperplasia (may be diagnosed presumptively)

Data Sources

HIV Data - Surveillance

All confirmatory laboratory testing for HIV antibodies is done at the BC Public Health Microbiology & Reference Laboratory (BCPHMRL) located at the BC Centre for Disease Control (BCCDC). BCCDC determines which of these individuals are testing positive for HIV for the first time then informs the appropriate designated public health nurse (PHN) about these individuals. The PHN provides follow-up for these individuals that include completing surveillance forms which are then forwarded to BCCDC where the collected information is entered into the provincial HIV/AIDS database.

Persons testing HIV positive as part of immigration requirements are obtained through two separate sources. As of September 2004, Citizenship and Immigration Canada (CIC) notifies Clinical Prevention Services at BCCDC of individuals who undergo an immigration medical exam (IME) outside of Canada, test positive for HIV, and indicate BC as their intended province of residence. Individuals who undertake their IME within BC (as indicated by reason for testing) and test positive for HIV are reported to BCCDC by BCPHMRL through routine surveillance.

HIV Data - Testing

HIV testing data presented in this report are based on HIV testing conducted by the BCPHMRL which is estimated to conduct >95% of all screening tests for HIV in the province. Provincial testing volumes for females undergoing HIV testing as part of prenatal care (i.e., reason for testing is prenatal screening) are available from 2007 onwards and include all prenatal HIV tests conducted by the BCPHMRL. For this analysis, the number of unique women having a prenatal test per year is reported (i.e., a woman has more than one prenatal test per year is counted once).

AIDS Data

Due to expected delays associated with AIDS case reports, this report only includes cases to 2012. AIDS case reports are allocated according to the year a client is diagnosed with his/her first AIDS defining illness (e.g., a client is diagnosed with his/her first AIDS defining illness in 2005 and a subsequent AIDS defining illness in 2012 – this client's AIDS case report is allocated only to year 2005). Prior to 1997, AIDS case reports were compiled courtesy of the Vancouver Health Department. From 1997 to 2000, Clinical Prevention Services at BCCDC compiled AIDS case reports in collaboration with the Division of HIV/AIDS Surveillance, Bureau of HIV/AIDS and STD, Laboratory Centre for Disease Control, Health Protection Branch, Health Canada.

Since 2000, AIDS case reports have been compiled by Clinical Prevention Services at BCCDC in collaboration with the BC Centre for Excellence in HIV/AIDS. A twice-yearly review of clinical records maintained by the BC Centre for Excellence in HIV/AIDS is conducted to identify new diagnoses of AIDS defining illness and the information is entered into the provincial HIV/AIDS database. AIDS case report forms are also received from health care providers who have made a diagnosis of an AIDS defining illness in a person who is HIV positive, or from public health nurses if this is elicited during follow-up of a new positive HIV test (e.g., AIDS at the time of HIV diagnosis).

Please note that AIDS data presented in this report differ from previous reports as the review of clinical reports from the BC Centre for Excellence in HIV/AIDS in 2013 included additional reports of historic AIDS cases. These cases were identified through a retrospective linkage with both historical discharge diagnoses data from the HIV/AIDS ward at St Paul's Hospital and data from the death registry at BC Vital Statistics Agency.

Population Data

Unless noted otherwise, population data and associated rates were based on the P.E.O.P.L.E. 2013 Population Estimates and Projections released by BC Stats, BC Ministry of Labour and Citizens' Services.

First Nations Population Estimates

Population rates for First Nations people are calculated using estimates from Aboriginal Affairs and Northern Development Canada (AANDC, formerly INAC: http://www.aadnc-aandc.gc.ca/).

These estimates are based on the Indian Registry System (IRS), which includes individuals who have registered for First Nations status under the Indian Act. The IRS is subject to several limitations, including:

- Under-counting due to delayed reporting of infants entitled to be registered, as well as other unregistered individuals who are entitled for status designation
- Over-counting due to individuals remaining on the IRS after they are deceased
- Geographic misclassification because individuals are included in the BC population according to membership of a BC band rather than current place of residence
- Systematic biases from imbalance in the migration into and out of the BC region (these are difficult to quantify)

For further details about the data source and its limitations, see the report entitled *Registered Indian Population by Sex and Residence, 2012.* Aboriginal Affairs and Northern Development Canada.

Additional Notes

Interpretation of HIV Data

The number of new HIV diagnoses does not reflect the number of new HIV infections per year or HIV incidence as individuals may be diagnosed with HIV years after their initial infection with HIV.

HIV became a reportable disease in BC in 2003 accompanied by more complete follow-up of new HIV diagnoses by designated public health nurses. This change improved the quality of surveillance data through:

- Improved identification and exclusion from surveillance reports of individuals having a first HIV diagnosis in BC who were found to have a previous HIV diagnosis outside BC
- Improved documentation of exposure category and ethnicity resulting in a decrease in the proportion of new HIV diagnoses where exposure or ethnicity is unknown

New or Previous Positive HIV Test

If a report of a new positive HIV test is identified in an individual having a history of a previous positive test (i.e., previous positive test result identified in the BCPHMRL database or elicited during case follow-up), this is considered a previous positive HIV test and excluded from surveillance reporting. If no such history is elicited, the report is considered to represent a new HIV diagnosis and included in surveillance reporting. The exception is for persons testing as part of immigration requirements – persons who tested previously positive for non-immigration purposes are classified as persons with a previous positive HIV test thus not included in surveillance reporting but included as immigration-related HIV diagnoses in Figure 31.

Classification of Health Region

Cases are assigned to health regions (i.e., Health Authority or Health Service Delivery Area) by residence. If residence is unknown, the case is then assigned to the health region where the individual was tested.

Classification of Ethnicity

Cases are classified by ethnicity according to information elicited from the case or health care provider during follow-up.

Ethnicity	Example
Aboriginal	First Nations, Inuit, Métis
Arab/West Asian	Armenian, Egyptian, Iranian, Moroccan, Lebanese, Afghani
Asian	Chinese, Japanese, Vietnamese, Cambodian, Indonesian, Filipino, Korean, Laotian
Black	African, Haitian, Jamaican, Somali
Caucasian (White)	Irish, Scottish, English, Portuguese, Italian, Russian
Hispanic	Mexican, Central/South American
South Asian	East Indian, Pakistani, Sri Lankan, Punjabi, Bangladeshi
other/mixed ethnicity	ethnicity is known but is not included in one of the above categories or case has dual ethnicity
unspecified	information about ethnicity is not elicited from case or health care provider

Exposure Group Hierarchy

Individuals having a new positive HIV test may belong to more than one exposure category (e.g., a person may have a history of injecting drugs and heterosexual contact). These individuals are assigned to the exposure category listed first (or highest) in the following hierarchy.

1. **MSM*:** Male who reports having male sex partner(s), with or without female sex partners.
2. **PWID:** Person who reports current or prior history of injecting drugs.
3. **Heterosexual Contact*:** Male who reports having female sex partner(s) only or female who reports having male with/without female sex partner(s).
   i) Heterosexual with at least one Identified Risk factor – Person who reports heterosexual contact and one or more of the following:
      - was born/resided in a country where HIV is endemic
      - sexual partner is HIV positive
      - sexual partner is at increased risk for acquiring HIV (e.g., injects drugs, male who has both male and female sex partners or from an HIV endemic country)
      - sex trade worker
      - patron of sex trade worker

   ii) Heterosexual with No Identified Risk factor – Person who reports heterosexual contact and no information about place of birth/ residence, or about sexual partner(s), or none of the above risk factors.
4. **Blood / Blood Product Recipient:** Person who reports receipt of whole blood or blood product (e.g., packed red cells, plasma, platelets, cryoprecipitate, or pooled concentrates of clotting factor).
5. **Occupational Exposure:** Person who reports exposure to HIV contaminated blood or body fluids or concentrated virus in an occupational setting.
6. **Perinatal Transmission:** Transmission of HIV from an HIV-infected mother to her child either in utero, during childbirth, or through breastfeeding.
7. **Other Risk Factor:** Likely route of exposure to HIV is known but cannot be classified into any of the major exposure categories listed here. For example, receipt of semen from an HIV positive donor or females reporting female sex partner(s) only.
8. **No Identified Risk Factor (NIR):** Route of exposure to HIV is not identified at the time of completion of case follow-up (e.g., route of exposure not provided by case).

9. **Unknown:** Route of exposure to HIV is unknown

Note that in this report, individuals with a new HIV diagnosis are categorized into five groups:

- MSM - men who have sex with men
- PWID - people who inject drugs
- HET - heterosexual contact
- Other - blood/blood product recipient, occupational exposure, perinatal transmission, and/or other exposures
- NIR/UNK - no identified risk/exposure unknown

* A transgender individual may be assigned to either MSM or Heterosexual Contact exposure category depending on how this individual describes their sexual partners.

Endemic Country

Individuals are categorized as being from an endemic country according to the Endemic Countries List[18] maintained by the Public Health Agency of Canada.